



J. R. No. 3257  
Date 15-4-65

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL. 21, No 1

NEW YORK, N Y

JANUARY, 1921

## STATE MEDICAL LEGISLATION Its Effect Upon the Public and the Profession

### A Symposium

Read before the Medical Society of the County of  
New York, December 29 1920

THE HEALTH CENTRES BILL OF 1920  
By EDWARD LIVINGSTON HUNT MD

**I**N my address tonight I will try to analyze the Health Centres Bill of 1920

This Bill was called An Act to Amend the Public Health Laws so as to provide for residents of rural districts for industrial workers, and for all others who cannot otherwise secure such benefits, adequate and scientific medical and surgical treatment, hospital and dispensary facilities and nursing care, to assist local medical practitioners, and in general to improve the health of the inhabitants of the state, by authorizing a County, City or Health District to create and maintain one or more health centres, to provide state aid for same and make an appropriation therefor

The bill in substance provided for the formation of health centres. The Board of Supervisors of any county could establish a health centre, which would serve the whole or part of the county. The plan was optional. The details were as follows—the erection of hospitals, the formation of clinics for out patients, clinical, bacteriological, X-ray and chemical laboratories, the establishment of public health nursing service and headquarters for all other public health, medical, nursing, and welfare agencies of the district, co-operation with the State Department of Education in securing proper medical supervision and medical inspection for school children, periodic medical examination of such inhabitants of the district as desired it

The location, site, plans, and initial fixed equipment of the centre would be subject to the approval of the State Commissioner of Health. The Board of Supervisors, when they had decided to establish such a health district, would have certain powers which would be to purchase or lease real property, to enter into contracts, to cause to be assessed, levied, and collected such sums as they might deem necessary, to accept

and hold in trust for the county any grant or devise of land, and to appoint a Board of Managers of the Health Centre, which should consist of eight members including the Commissioner, the President of the Board of Health, and of the other members at least one woman and two duly licensed physicians

Their powers would be to appoint a Superintendent, to fix the salaries of the Superintendent to exercise general management and control of the said health centre grounds, buildings offices attendants, physicians, employees and inmates thereof, to make such rules and regulations as advised by the Medical Board as being necessary for the study of the nature and cause of death in cases terminating fatally, to make rules and regulations regulating the fees to be charged for all medical and surgical services, to fix the salaries of attending physicians, and to make rules and regulations for the carrying into effect the purposes of such health centres, to erect all additional buildings to employ within the limits of its appropriation public health nurses, to appoint a Medical Board, and to appoint and employ, after consultation with the Medical Board, all members of the medical surgical and laboratory staff of the Health Centre

The Superintendent of the Health Centre would be the executive officer subject to the Board of Managers and to the approval of the State Commissioner of Health. His duties would be to equip the Health Centre to have general supervision, to appoint any other employees to cause proper accounts to be kept, to receive, subject to the rules and regulations, into the Health Centre, any person in the health district who might be in need of medical or surgical care, irrespective of whether such person could pay for the care. He would also cause to be made such inquiry as he might deem necessary as to the ability of each patient to pay for his care and treatment

The bill stated that any physician attending any patient prior to such patient's admission to the hospital or the Health Centre should be allowed if the patient so desired, to continue such treatment while the patient remained in the hospital



In the cities the bill provided that the Mayor appoint the members of the Board of Managers of such Health Centre, and that the Board of Health of such city, if there should be one, should be appointed as now or hereafter provided by law

The state, through the Legislature, should provide the following aid For the construction and equipment of hospitals, one-half of the cost thereof, a grant of 75 cents per day for each free patient maintained in any hospital operated as a part of such Health Centre, a grant for the establishment of each out-patient clinic, a grant towards the ordinary current expenditures for free treatment, a grant of one-half of the actual cost of maintenance of the laboratory or laboratories of health centres not in excess of \$3,000 per annum for each laboratory, and of \$1,500 toward the initial installation

The work of all health centres, including the hospitals, clinics, laboratories and so forth, should be inspected and standardized by the State Department of Health, and all the state grants herein provided for should be paid only on the written approval of the State Commissioner of Health, after inspection of such centre Provision should be made by the State Commissioner of Health for occasional or periodical consultations and clinics at the health centres by specialists in medicine and surgery

Persons able to pay in whole or in part for such services would be charged a reasonable sum therefor, and the sum so received would be paid into the treasury of the Health Centre It was not intended that this arrangement should in any way affect the private relation which might exist between the patient and his own physician who might bring him to the Health Centre

This is as short a summary of the Health Centre Bill of 1920 as I can make in eight minutes This measure is dead and not now before the Legislature We have been given to understand, however, that a measure similar in principle but differing in detail will probably be presented to the Legislature at the coming session

There are many arguments in favor of this measure, and there are many arguments against it It seems to me that there are three big questions which at once present themselves and which ought to be decided by you (1) Will this legislation affect the community favorably or adversely? (2) Will this legislation affect the medical profession favorably or adversely? (3) Assuming that the two conflict, what is your duty as a medical man?

The arguments in favor of the bill are

(1) The conditions which exist, which will be told you probably by one of the later speakers

(2) The tendency which the measure affords toward advancing group medicine and making progress in medicine

(3) The benefits to the community

(4) The fact that some sort of legislation will be enacted under the heading of Health Centre Legislation, due to the conditions, the demands of the people, and the activities of the State Department of Health

(5) The fact that such legislation would probably stimulate the profession, and, so its advocates maintain, educate the rural physician

(6) The prestige which the enactment of a progressive measure will afford to the State Department of Health

The arguments against this bill are

(1) Too much power is given to the laity and too little to the medical profession

(2) Too much power is given to the County Boards of Supervisors and the Mayors of cities, which may make for political graft

(3) Too much power is given to the State Department of Health It may be well enough to give such powers as this bill confers to the present State Department of Health, but how about a different and inefficient commission? Is it wise to give such powers to any department?

(4) Too little recognition and power is given to the medical profession Too much political control over the doctor is given to the elected official, the Supervisor and the Mayor

(5) It is a step towards centralization of government and paternalism That is doubtless a tendency of the times, but is it not akin to government ownership of railroads?

(6) It is a measure which, to a great extent, tends to or does deprive us of our liberties It is an entering wedge toward state medicine It may not be state medicine, but it is *county* medicine

(7) It is unfair inasmuch that if Dr Jones is connected with a health centre and Dr Brown is not, Dr Jones will receive certain advantages of prestige and financial emolument, which will not be open to Dr Brown, as it will advertise the one and condemn the other to obscurity

(8) It puts a large number of medical men on a salary, and so does away with, or deprives them of, initiative and individualism,

nd must to a certain extent in that way lower the morale of the medical profession

(9) It cannot command the best talent in the medical profession. The state never can command the best that is in the state, because the state will never pay the rewards which the individual will. No state or government ever has secured the best, except in the emergency of war.

(10) And finally, it is an additional burden to the taxpayer

## NEED OF HEALTH CENTRES

By EDEN V DELPHEY, M.D., Chairman

Committee on Compulsory Health and Workmen's Compensation  
Insurance Committee, Medical Society, County of New York

FROM time to time, various and sundry amateur and professional uplifters have endeavored to prescribe for the political industrial and bodily ills of mankind, and not infrequently their prescriptions are based either upon an inaccurate and incomplete investigation of all the facts in the case with a resulting inaccurate diagnosis of the underlying pathological condition, or upon an incomplete appreciation of the collateral effects upon not only those whom they wish to assist but also upon those whom they wish to assist them. In endeavoring to arrive at a proper conclusion as to the desirability of any proposition for the betterment of mankind, it is absolutely necessary to very carefully consider and weigh all the facts in the case, their relation to each other and to the surrounding elements of society, the nature and variety of the employment, the income, the mode of living, sanitation, environment, cost of food and clothing, medical attendance, drugs and medicines, the amount spent for these and other luxuries, for extravagance, for dissipation—mild, such as the movies, or more serious as for alcoholics, for irregularities such as gambling or immoralities. Until such a complete survey has been made, it will be utterly impossible to absolutely determine the need of the proposed measure. In making such a survey, it is imperative that the surveyors shall be thoroughly competent for the purpose—that they shall be those with the inclination, training and capability for the work and not as was the case a few years ago when it was proposed to utilize fourth-year high school students in making a sanitary survey of the West Side. In medical matters it is necessary that the surveyor shall be a broad-minded, ripened and experienced physician in order that he may be capable of determining and weighing all the facts and of ascertaining whether or not the person is really in need of medical care and whether he will accept it, or whether he prefers to depend on home-treatment, quack medicines.

New Thought" or on "Christian Science." In promoting the propaganda for health centres,

these conditions do not seem to have been fulfilled. Moreover, the propagandists seem not to have been able to appreciate the fact that prevention is better than cure, that their Utopian schemes are not calculated to prevent the incidence of disease which they want to relieve after they have already occurred. The sun, as he goes his daily rounds does not look down upon a race which has not been sorely tried by impractical experiments to uplift and reform. From the beginning of time, all men have had a willingness, if not an ambition, to help the poor and needy. But they usually prefer to help someone at a distance—like sending red flannel shirts to the Hottentots of Africa—and not to help those nearby, to attend to some other work and not to the work for which they were constituted and created. But the poor have not been helped, on the contrary, we are all being constantly and needlessly oppressed. Millions willing to work and care for themselves have been impoverished and pauperized, cruelly, needlessly, and wickedly by those who have pretended, and sometimes honestly, to want to help them.

The researches of your committee have shown that while the number of physicians in the rural districts is less than formerly, this change is due to the rural physicians moving to the cities and towns, because there they can more easily earn a reasonable living without such an immense expenditure of energy and vitality, and because there are fewer recent graduates going to the rural districts. These results are due to the more strenuous life of the medical practitioner in the rural districts, the question of fees and collections, and to the fact that the true physician goes to see a sick person whether he can pay or not. The lessened number is also due to the law of supply and demand and whether the person demanding is willing to pay a reasonable price for the supply. The spreading abroad of the fact of the lessened number of physicians in the rural districts is due to the desire of the amateur and professional uplifters to arouse the enthusiasm and support of those who have been deemed to be "amiable weaklings in business matters, easily gulled by piteous tales and flattering remarks about the magnanimity of the profession," and thus to inveigle them into supporting an impracticable and dangerous scheme. The general medical practitioner is the most altruistic person on the face of the earth—he is constantly striving to get and to keep his patients well and to thus lessen his own income. This is after he has entered into the practice of his profession, but the average man is by nature concerned primarily and chiefly in those things which pertain to his own personal advantage. Almost no one, except the theological student, goes into a profession purely and solely for the glory of God and the benefit of mankind, and if the obstacles to the successful practice of medicine are increased by such

schemes as compulsory health insurance, health centres and state medicine, the quality of the men who will choose the medical profession will be materially reduced and when that happens the whole people will suffer from their inefficiency.

In the reports received in response to our circular letter, your committee has found that on the average there are  $2\frac{1}{2}$  hospitals in each county and that these have the confidence and support of the people, that the people in the rural districts get their physicians more easily, and the physicians to their patients more easily, except when confronted by the deep snows of winter, on account of the use of automobiles and the "state roads" throughout the state. The majority of cases do not need the so-called advantages of "group medicine" nor of hospital treatment. All they need is a good, clean, well-lighted and well-ventilated room, good medical attention, and someone who is gentle, kind, neat, and fairly intelligent to take care of and to wait on them. All of these can be as well obtained in the rural districts as in the most aristocratic city hospital where the expense per capita of keeping the patients is higher than it would be in the highest-priced hotel in New York City. Moreover, even if it were necessary to have all the highly-qualified specialists specified in the propaganda for health centres where would they be able to get real and not pseudo-specialists? Would they be made over-night as it is reported some of the specialists in this city are? Again, would the specialists agree on the diagnosis and treatment? If not, what sort of a predicament would the poor man be in? Suppose the ophthalmologist insisted that he had oculo-motor imbalance and must have his muscles cut, the rhinologist, that he must have his tonsils, adenoids and turbinates removed and his ethmoids curetted, the dentist, that he should have all his teeth extracted, the otologist, that he should have a mastoid resection, the gastro-enterologist, that he should have the "cobwebs in the attic" removed, the abdominal surgeon, that he should have a gall-bladder resection and his appendix taken out, the urologist, that he should have an operation on his prostate and his "calibre" dilated, the proctologist that he should have his hemorrhoids removed and perhaps the lower end of the intestine resected. "What would the poor man do then?" Fortunately he is not a woman, for if the gynecologist got hold of him, the Lord only knows what the end would be. "Group medicine is not all it is cracked up to be." One of our most honored members, recently deceased, told me of a patient who came to his office, after having been to one of the highest priced diagnostic clinics and where she "took the whole course," and informed him that they told her that "her condition was due to some as yet unidentified germ circulating in her blood."

The business of government is not to make men or to cure them, but to give them a free chance to

make themselves, to take care of themselves, and to choose their own method of being treated when sick. That was the spirit on which this government was founded. That was the practice which developed the American pioneer and which distinguishes him from the European peasant. Individualism develops a breed of strong, self-reliant free-men. Socialism is simply a crutch for the half-free, half-dependent, or wholly dependent. The demand for it in America has grown in direct proportion as a number of unassimilated aliens has increased. Educated and coerced into the belief of the super-state, always subservient to some one, always dependent upon someone, they conceive government to be omnipotent for good or for evil, and so they are easily led by agitators and demagogues in and out of office, and who are always seeking to increase their power—and their income.

The highest degree of civilization is not indicated by the city having the greatest number of hospitals, almshouses, and insane asylums, not the one having the greatest, but the one having the least need of them.

The State Department of Health was constituted for the following purposes

- To supervise the sanitary engineering of the state
- To investigate the causes of diseases,
- To prevent the spread of contagious and infectious diseases,
- To collect vital statistics,
- To educate the public in matters pertaining to health,
- To supervise child hygiene,
- To supervise public nursing,
- To supervise the tuberculous,

Therefore, its purposes being prevention, it can best accomplish the purpose of its creation by performing and adhering to these duties. The most injurious influences affecting the physical condition of young children arise from the habits, customs, and practices of the people themselves rather than upon external surroundings or conditions. The environment of the infant is its mother. Its health and physical fitness are dependent primarily upon her health, her capacity for domesticity, and her knowledge of infant care and management. The causes of infant mortality are. Defective sanitation, bad housing, overcrowding, insufficient nutrition of the mother, want of lactation, improper feeding, material ignorance of what is proper care, and hereditary vice, but the principal operating influence is the ignorance of the mother, and the remedy is the teaching of the mother. These duties properly belong to the Department of Health and if thoroughly and properly attended to will leave much less to do in the way of curing disease after these same children have grown up and have become adults.

Of late years there has been too great a tendency to "put it up to the government" and too little to the person himself—the socialization of

everything. Every attempt at nationalization, including our own during the World War, has resulted in inefficiency and decreased production. Have not our own personal experiences proved this? Have we forgotten the government control and operation of railroads, telegraphs and telephones? Is it not only recently that the telephone service has approximated in efficiency the standard set before the war? If we are to have governmental or state control, where are we to stop? Inasmuch as more than half of the ills of mankind are due to his eating, shall we have government control and operation of all the eating places? Shall we have institutions telling us where to eat, what to eat, when to eat, how much to eat and how to have it cooked? Shall we have public restaurants providing food without cost to all whether they can pay for it or not? Shall we have the same conditions regarding our clothing so that we shall be ordered what to wear and when we shall wear it? Will the clothes be furnished free? Do you think it will make women's skirts any lower at the bottom or any higher at the top? Shall we have our games, entertainments and outings supervised and regulated by some supervising agency which thinks it can best apportion them to our needs? Finally, shall we have our ideas and religion supervised and regulated by public agencies? Where then will be the boasted freedom of our country of which we are so proud? Is it not about time to call a halt to all these socialistic schemes? Is not the greatest efficiency through self-interest? Are not these simply the desires of someone to 'put over' schemes for "fat jobs" or are they merely the mundering expression of the weak and incompetents to directly or indirectly get something for nothing?

"What is a socialist? One who has yearnings for an equal division of unequal earnings, Idler bungler, or both he is willing To chuck in his kopeck and gobble your shilling"

The State Department of Health has been holding itinerant health clinics in various parts of the state and the newspaper report of the one held at Goshen states 'In the majority of cases the diagnoses of the local physicians were confirmed' (New York Times, Sept 12th, 1920) That being the case what was the need of these "health clinics"? I wish to most emphatically register my protest against the idea that the country physicians are the ignoramuses which so many of the city residents are so fond of assuming. On the contrary, they are at least equal to, if not more competent than the average city physician. They may not know so much about any one specialty but they have some knowledge of all the specialties and are better grounded in all-round medical practice. Being compelled to depend upon themselves, they have acquired a better understanding of the diseases that occur in

their locality and how to treat them. Robert Koch, the discoverer of the tubercle bacillus, was an obscure country physician, and I am creditably informed that the 'Mayo Brothers,' referred to in the State Department of Health's propaganda letter, were never even hospital internes, but they settled in a small country town and have been the cause of its great growth on account of their success and fame. Moreover, this was done without any subsidized "health centres" and was due entirely to the skill and genius of these same country practitioners.

In conclusion. There is no need of "Health Centres" as outlined in the Sage-Machold Bill introduced into the State Legislature in March of this year, but there is a great and crying need for further means of educating the public in the care and feeding of children and in matters pertaining to sanitation and to the prevention of disease.

Better put a strong fence at the top of the cliff  
Than an ambulance down in the valley"  
"Twas a dangerous cliff, as they freely confessed,

Though to walk near its crest was so pleasant,  
But over its terrible edge there had slipped

A duke, and full many a peasant,  
So the people said something would have to be done

But their projects did not all tally,  
Some said 'Put a fence round the edge of the cliff',

Some 'An ambulance down in the valley'  
"But the cry for the ambulance carried the day

For it spread through the neighboring city,  
A fence may be useful or not, it is true

But each heart became brimful of pity  
For those who slipped over the dangerous cliff,

And the dwellers in highway and valley,  
Gave pounds and gave pence, not to put up a fence

But an ambulance down in the valley  
"For the cliff is all right if you're careful," they said

And if folks even slip and are dropping,  
It isn't the slipping that hurts them so much  
As the shock down below—when they're stopping

So day after day, as these mishaps occurred,  
Quick forth would these rescuers rally,

To pick up the victims who fell off the cliff  
With their ambulance down in the valley"

Applying this to health centres  
Better keep them all well than cure them when sick,

For the results of experience are thrilling  
To cure up the sick is good but it's better

To prevent the people from illing  
Better stop the cause and source of infection

Than add more men to death's rally  
"Better put a strong fence at the top of the cliff,  
Than an ambulance down in the valley"

## THE STATE BOARD OF HEALTH

By HERMANN M. BIGGS, M.D.,  
New York State Commissioner of Health  
NEW YORK CITY

In coming here tonight I had expected only to speak if the opportunity arose. Dr. Rose, who was down to read a paper, has been taken ill this evening, so I came in his place.

I want first to express my approval of the very excellent résumé by Dr. Hunt of the Health Centres Bill, and the impartial way in which he considered it. I think there has been a great deal of misconception, as is usual in regard to any new measures of this sort. The question is as to what it would do.

The way this bill came to be drafted is as follows. When the Public Health Law was revised in 1914, the Public Health Council was created, and to the Public Health Council, among other powers, was granted the power to determine the qualifications for health officers, sanitary supervisors, public health nurses and other public health officials. One of the first actions of the Public Health Council was to establish certain minimum educational requirements for health officers; they provided that all health officers appointed after that time should have had a certain minimum education, amounting to a six weeks' course, practically, in public health, and through the efforts of the Public Health Council provision was made at Columbia University, Bellevue Hospital Medical College, Albany Medical College at Albany, Syracuse Medical College at Syracuse, and the Buffalo Medical College in Buffalo, for giving these courses to public health officers. Since that time more than six hundred of the little over one thousand health officers we have in New York State have taken these courses, but when we came to the enforcement of these regulations one of the first and most insuperable stumbling-blocks we found, was the fact that in many municipalities there was only one physician, and that this one physician was the health officer, and then we found further that many of these health officers were already far beyond the age limit. The Public Health Council had fixed an age limit of 65, physicians over 65 years of age were not to be eligible for appointment as health officers. But we found that in a large number of municipalities there was only one physician, and in many more the one physician was over 65 years of age.

And then came the poliomyelitis epidemic of 1916, and then the influenza epidemic, and the war and the demands which came to the Department of Health for medical assistance and nursing assistance from all quarters of the state, were so numerous and so urgent that first in 1916 and then again in 1918 the Gov-

ernor authorized the expenditure of \$50,000 by the State Department of Health, directed the Comptroller to borrow this money, and authorized the expenditure of this under the direction of the State Department of Health, to provide medical service and nursing care in various municipalities of the state, where these were not available.

And then we made a further study of the situation, and found that the drift from the country to the city had affected not only the rural population, the lay population, but had affected the medical population to a still greater extent, that in many localities, where there had formerly been two or three physicians, the younger men had left, many of the men that went into the service, when they returned from the service did not go back to the country where they had lived before, but having left the country and had something of another kind of life and association with their confreres, they were unwilling to go back to the country, and they went to the cities. And we found that the demand for medical service was more insistent and more widespread than ever.

We then made a census of the physicians in practice in twenty rural counties of the state. First we made a survey of Livingston County, which is a typical rural county of the best type. It is a very rich farm country, and was formerly a very fashionable county, Genesee, as many of you know, is there. In that county we found there were fifty-four physicians in practice. Of these fifty-four physicians only five had entered the practice of medicine or entered the county within five years. Some of those who entered the county in that five years, had been in practice for many years before. But the average period of practice of the fifty-four physicians in that county was twenty-eight years. You see what that means. The whole fifty-four physicians in that county had been in practice on an average twenty-eight years. That means, of course, that the physicians on an average in that county were over 50 years of age.

The data of the American Medical Association has shown that the average life of the physicians of the country is about fifty-nine years, fifty-nine and a fraction. It means, in other words, that a large percentage of the physicians in Livingston County will have retired or have died within the next eight or ten years. This was the first county that we studied.

Then we made a survey of all of the rural counties of the state, all of the counties of the state in which there is not a city, and, taking all the rural counties of the state, we found that the average duration of practice of all the

physicians in all the rural counties was over twenty five years and that less than three per cent of the physicians in these rural counties had entered practice within the last five years.

There have been sixty-eight municipalities in the state which have appealed to the State Department of Health within the last two years, to provide medical care because they had none. It was not that they had inadequate care, but because they had none. While the population of the rural counties has increased a little in the last twenty years—it is about four or five per cent—the total number of physicians in practice has decreased about 15 per cent, and these for the most part are the physicians who have been in practice there, who were in practice there previous to fifteen years ago. In other words, before the advance in the requirements for medical education. When I graduated in medicine all that was required was two courses of lectures of four and a half months each. There were no preliminary requirements for the study of medicine, any one could study medicine, only two courses of lectures of four and a half months, and registering with a physician for three years, was required. Now instead of that, as you know, there must be at least two years preliminary to the study of medicine and four years in medical school of at least eight months, and practically every man who graduates in medicine must have a hospital training. As a matter of fact, I think 97 per cent of the men graduating from the medical schools in New York State do have hospital training.

You know very well that after men have spent these seven or eight years in preparing themselves for the practice of medicine, they will not willingly go into a rural community where they are absolutely cut off from association with their medical confreres. Now, mind you, that is the first thing, they are absolutely cut off from all association with their medical confreres. In the second place, they have absolutely no laboratory facilities of any kind. Those are the objectionable features. It is not that they do not make a good living, as a matter of fact, they do extremely well, they do far better relatively than a large number of the men in the cities. But a man who has been properly trained and had hospital service will not go willingly into the practice of medicine of twenty-five or thirty years ago.

Just think for a moment what it would mean, if you were cut off absolutely from all kinds of laboratory service and X-ray service. If you were cut off from all association with your colleagues, from all assistance from specialists, and you were left to practise everything—every specialty in surgery, medicine, gynecology, obstet-

rics and everything else. In other words, you would be going back to the practice of medicine exactly as it was twenty-five or thirty or forty years ago.

Now, that is exactly what the practice of medicine is in the rural districts of the state. I doubt if there is any one of us who would undertake this work, I am sure I would not. I would not be willing to go into one of these rural districts and undertake the kind of work that those men have to do. They have to have a breadth of knowledge and a familiarity with all sorts of things, which none of us could have. But you cannot do the kind of work which modern medicine presupposes unless you have the opportunities and facilities which modern medicine involves, and that is what they lack. There are something like twenty-seven counties in the state where there are no laboratory facilities at all, and in the others to a large extent excepting where there are cities of considerable size the only laboratory facilities available are those which are furnished by the public health laboratories and they are confined to the diagnosis of diphtheria and tuberculosis, chiefly those, most of the Wassermann tests and other work being done at the laboratories which the State Department has. It was the discovery of this situation which led us to think more seriously about these conditions.

Further than this, we find that not only is there lack of physicians, but there is lack of nurses. You cannot get nurses, they are not to be had. We have increased the number of public health nurses in New York State, outside of New York City, in the last six years from about 75 to nearly 1,100. There are nearly 1,100 public health nurses in the state now outside of New York City, but we have had the greatest difficulty in getting them. These are nurses who are employed by the local communities and by the counties, by the local Boards of Health or in some instances by the Red Cross Chapters or by other voluntary organizations, but they are all doing public health nursing.

But when it comes to getting nurses for private duty in rural districts it is almost impossible to do it, and if they can be obtained the cost is beyond the reach of most of the people. You know that now our nurses in the city are getting \$5 or \$6 a day, and many of them are unwilling to do more than twelve hours' service. In serious illness they are not willing to do more than twelve hours' service. That means that the nursing costs \$10 or \$12 a day, besides the board of the nurses, and when that is added to the cost of medical supplies and so on, it is entirely beyond the reach

of the average resident of the rural districts. In other words, the demand for hospital facilities is becoming greater and greater.

And that has been still further emphasized and intensified by the fact that domestic servants are not to be obtained at all. You know somewhat of the difficulty of obtaining domestic servants in the city, but when you go into the smaller cities that is enormously increased, and when you go into the rural districts there are none at all, and so when an individual becomes seriously ill in the rural districts there are no domestic servants, there are no nurses, and the doctor is eight or ten or twelve miles away, and you can imagine what the condition is.

It was this situation which brought us to the consideration of this bill. The Health Centres Bill as it stands, I drafted, I take the full responsibility for it. It was then submitted to the Public Health Council, and modified in various respects, and as thus modified it was presented to the Legislature.

I want it quite clearly understood that this is not primarily public health legislation. I did not regard it so and do not regard it so, and have never regarded it as such. There is a part of it which is public health legislation, it refers to the creation of health districts. The health districts may be the same as the health centre district, if the local authorities so decide, and there can be appointed a health officer over the local district, and a Health Board may be created for this district. It may be a county or it may be a part of a county. And in that sense it is a public health measure.

The measure also provides that for the local health officers and health officers in the local districts, a certain compensation shall be provided by the state. These health officers in many of these districts get \$50 to \$100 a year, they get 10 cents per capita. They get \$50 to \$100, or \$150 to \$200 a year. And the only reason they got that is because in the Public Health Law we introduced the provision that the minimum compensation of a health officer should be not less than 10 cents per capita of the population served, and the next year a bill was introduced in the Legislature to repeal that, and we had the most bitter fight we have had since I have been in the State Commission of Health on that question, of the repeal of that provision of the Public Health Law which provided that the minimum compensation should be 10 cents per capita.

This bill increases this per capita allowance by 10 cents, the state paying 10 cents, so that the per capita allowance in the smaller municipalities would be 20 cents instead of 10 cents, as it is now. In that sense, so far as that is concerned, it is a public health measure. The other provisions are not primarily public

health provisions at all, but it is an attempt to provide medical service in the state where it is now wanting.

I just want to say one or two things more—and in that sense I am not interested in it excepting as I am interested in a general way in public welfare. We were discussing this the other night at the Harvard Medical Society, and Dr. Dadmun spoke of a certain doctor coming in to his church where a man was preaching. On the request to remain, he turned to his friend and asked, "How long has he been preaching?" The friend said, "He has been preaching thirty years." "Well," replied the doctor, "in that case I think he won't go on much longer, and I think I will stay." I thought that particularly pat, because I have been in public health almost thirty years, and I won't stay much longer, I don't think. So that as far as I am concerned it does not concern me primarily or particularly.

But I do want to emphasize one or two things strongly. That is, that the medical profession has been very unfortunate, I think, in the general attitude which it has taken. Perhaps you do not remember it, but I remember seven years ago speaking at a meeting in this hall, when you were discussing the supervision of venereal diseases, in which three or four papers were read attacking the action of the City Board of Health with reference to the supervision of the venereal diseases. I remember at that same time committees were appointed by the Medical Boards of the City Hospital, the Metropolitan Hospital and the Kings County Hospital, and these three committees forming a joint committee went to the Mayor and asked him to intervene and to compel the Health Board to rescind its action looking toward the supervision of venereal diseases. And all that the Health Board required then, or asked then, was that cases of venereal disease under treatment in general hospitals and in dispensaries should be reported to the Health Department, it providing laboratory facilities for the diagnosis of venereal diseases.

Nothing could have been sharper than the criticism at that time on the action of the Board of Health, or more general than the demand of the medical profession for the rescinding of that action. That was exactly what happened with regard to tuberculosis years ago, and I spent a good part of the winters of 1898 and 1899, and part of 1900 in Albany, trying to prevent the enactment of legislation which was initiated by the New York County Medical Society for withdrawing the power from the New York City Board of Health to deal with tuberculosis at all. The New York County Medical Society at that time wanted to take away from the health

authorities the power to deal with tuberculosis. At the present time, I think, in the state and city laboratories there are about 25,000 Wassermann tests made a month. Seven years ago the work was just begun.

Now the general attitude of the medical profession is part of the kind of work that they do, the fact that a physician is generally so absorbed in what he is doing, his own work and the work with his own patients, that he does not look out and get a broad view of the situation as it exists in the state, and his attitude, the natural attitude is one of obstruction. Now, I do not venture to maintain, nor would I for one moment argue, that the health centres legislation which was introduced last year is model legislation. It was the best that we were able to devise at that time. The need for it exists. Now, no action which this Society, the Academy of Medicine or the profession of medicine in this state may take—no action of a negative kind is going to change that situation, and if we do not change it somebody else will take action to meet this condition. If you know anything about Albany, or if you know anything about the Legislature, you know that the control of the Legislature does not rest in New York City nor in Buffalo nor in Rochester, but it rests with the farmers in the rural districts, and when they decide that they want some particular legislation they will have it. It does not make any difference whether the medical profession want it or whether they do not want it, it will be enacted, because it is the farmers who control the Legislature, they control the Republican vote.

Now, the thing for the medical profession to do in my judgment is not to come to Albany, as they always have done, if they came at all—generally they did not come at all, to obstruct something or to oppose something. The thing to do, in my judgment, is for the medical profession to get together and to propose something constructive. If this is not what they want, then let them propose something that is better, and which will meet the situation in the city and in the country districts. Do not go as obstructionists always. That is what the Legislature will tell you 'the medical profession always come here to oppose, they never have had anything to propose'. And unfortunately they have not, as a rule, shown very great activity even when their vital interests were involved.

Year after year we have had a bill before the Legislature legalizing the practice of chiropractic. Year after year the Department of Health has had considerable influence in Albany, and the Department of Health has opposed these bills before the committees, and either the bills have not been reported out at

all from the Public Health Committee in one House, either the Senate or the Assembly, or if they were reported out they never came to a vote.

But last winter the situation was different. The chiropractors gained a good deal of power, and they raised a considerable amount of money, and they retained competent legal counsel and they had a good deal of influence in a community where one of the leaders in the Legislature lived—in fact, he was the leader in one of the branches of the Legislature, and the result was that we saw very early that the Chiropractic Bill was going to pass the Legislature and we notified every prominent county medical society in this state, we notified the President and the Chairman of the Comitia Minora of the New York County Medical Society, the Kings County Medical Society and all of the others, and we implored them to send representatives to the joint hearing in Albany to oppose that legislation. And what happened? Not one single person appeared, not one single person.

The only opposition that came was that of the New York State Department of Health and the State Department of Education. We asked Dr. Rooney to also come and appear, but he said he was not authorized, he was not on the Legislative Committee but would come and appear for us if we desired it.

Now if your Comitia Minora, or some special committee, will study the situation and offer constructive legislation or constructive criticism, that is what we want. But you may be quite sure that the attitude of single opposition will not much longer be effective.

## IMPENDING PUBLIC HEALTH LEGISLATION

By HENRY LYLE WINTER, M.D.  
CORNWALL, N.Y.

I CAME here tonight on the invitation of your President, but more for the purpose of learning what the attitude of this County Society might be in reference to impending public health legislation than to impart any information, except possibly on one or two minor points. The officers and chairmen of the standing committees of the State Society have a great deal of trouble many times because we are not conversant with the attitude of the various county societies throughout the state. We have frequently thought we were doing the right thing, and have taken action which we found out subsequently was opposed by some of the larger or smaller county societies. Now I think there ought to be some method established in the several county societies which would help out the chairmen of the standing committees in the State Society by giving them the information they need.



It would seem a good plan for the Secretary of this and every other county society to be instructed to send full reports to the Editor of the State Journal of any action taken by the societies upon public health matters. Those reports should be sufficiently enlarged upon to convey the attitude and desires of the societies, not merely reports as to whether they voted for or against a measure, but containing enough of the discussion so that the information might go broadcast through the state and might carry to us, the chairmen of the State Society committees, enough information to help us in taking whatever action we have to take.

The Committee on Medical Economics of the State Society expects or hopes soon to be able to meet with representatives from all the county societies and take up these several matters which will probably come before the legislature, in a manner which will be satisfactory to the various parts of the state. The interests are so different throughout the state that we need some system of this kind.

I want to say a few words tonight about three subjects: first, the annual Re-registration Bill which will come up, then this Health Centre Bill which has already been so well discussed, and the Chiropractic Bill.

Health Insurance has been pretty thoroughly discussed and it, too, will probably come up this year. I think we all know where we stand on Health Insurance, and I do not imagine that there is the least particle of danger of such a bill going through the present Legislature. I do not think we need have any anxiety on that matter.

The annual Re-registration Bill that I am going to speak of again is a very good illustration of the point that I was trying to make a few minutes ago, of the necessity of a State Society Committeeman being familiar with the county societies' desires. As the Chairman of the former Intermediary Committee, before the establishment of the Economic Committee in the State Society, I met with Dr. Downing and others and we went into this annual Re-registration Bill very thoroughly. I went around to different parts of the state and talked about it. I came down here, and I do not know whether you all remember how badly I was condemned or not, but I was, and so was everyone else who came down for that bill. New York County did not want it. I do not know whether New York County wants it yet or not.

But it is a bill that will probably come up again this year. I am not talking in favor of it tonight, although I am in favor of it, but what I want to say to you is that this will come up. Similar bills have been in force for several years with the dentists and the veterinarians. I believe the dentists and veterinarians like the

result. They have had the effect of driving out of dental practice some of those dental parlors and other fraudulent dental interests, and they have put out of business a lot of unregistered or unlicensed veterinarians.

I want to mention briefly that there are two things which this bill certainly does to the medical profession which are objectionable. The first thing it does, with its annual Re-registration, is to take away what is a life-long privilege of the practice of medicine, and to make it an annual thing, contingent upon re-registration. As far as I see there is no objection to that, except that if you forget to register you are temporarily out of business, but you can get back into it. The other thing is that it charges the medical profession a fee for the protection of the public. Those two things are objectionable. There are other factors which to my mind offset these objections.

The way in which the law has been worked out with the dentists and with the veterinarians is this. The dentist who registers under the Annual Re-registration Law receives from the State Board of Regents or the State Department of Education a list of the licensed dentists in his vicinity. If some dentist next door to him is practising dentistry and his name is not on that list, he is requested to write to the Department or to the Board of Regents and inquire why Dr. Smith is not on the list that was sent to him. That is all he has to do, but he is asked to do that. The State Department takes up the question of Dr. Smith's practising. If he is registered and it is simply an oversight that his name was not on the list, the dentist is so notified and Dr. Smith goes on with his practice. If he is an illegal practitioner of dentistry the Attorney General of the State undertakes to get evidence and to prosecute him. In that way the legal practitioner of dentistry is protected against the illegal one, without any particular effort on his part, and without having to depend upon local district attorneys, or without being met by a local district attorney with the statement that, "If you will bring me the evidence of illegal practice I will be glad to prosecute the offender."

When we consider the Health Centres Bill it seems to me that we are facing a condition which is very important. There have been statements made as to the necessity for some kind of further care for the sick. Now, if the sick need further care, nobody ought to be more anxious to give it to them than the medical men. I have gone over some parts of the state as carefully as I could. I have not been into the extreme rural districts, such as Livingston County, for instance. I do not know the geographical arrangement there, but I do know that in the southern section of the state, south of Albany, with which I am more familiar than with any other part, the conditions

are not apparently as bad as would appear from the statements of representatives of the State Department of Health.

A good deal of my work is consulting work through that section of the state, and I meet a great many country doctors, and they are pretty good all-around men, as Dr. Biggs has said. The country doctor is a good diagnostician, he has got a lot of good sense, and he follows up his cases very well indeed. He ordinarily makes a pretty good diagnosis, and he is ordinarily willing to have consultation if he can get it. The only criticism which I have to offer of him is that he appears to hesitate to call his neighbor in consultation. I do not think that he gets together with his fellow practitioners in his own town often enough.

In the statistics which were published in the Journal of the State Society some time ago, which resulted from a questionnaire sent out by the Committee on Economics of the State Society relative to the incomes of doctors, I noted that there were a great many men throughout the state who were engaged as part time specialists which means that they are especially interested and in all probability especially competent in, certain lines of work, more competent than the ordinary man to make detailed diagnoses in some difficult cases in their particular lines of work. So that, judged from those statistics and from what I know of the country, reasonably good consultants are obtainable throughout the rural districts, where there are no cities but only good sized towns, because I found a great many of those part time specialists who are living in communities of 5,000, 6,000 or 7,000 people.

The present condition of the roads, transportation facilities, the automobile make it possible for patients to be moved much greater distances than was possible a few years ago and for physicians to travel much greater distances, so that it is very much easier for the rural resident to get in touch with special advice than it used to be. Of course, the rural patient is a longer way from his doctor than the city patient is, and possibly he does not have as many calls made upon him but he gets along reasonably well and, in my experience, does not suffer from neglect. I do not think the death rate is any higher, and the morbidity rate apparently is not higher.

The Health Centres Bill proposes to do certain things to take care of these districts. I infer that the clinic which was held under the auspices of the State Department of Health at Goshen, in Orange County, in August of this last year, was an experiment by the Health Department as to the kind of work which would be of advantage in the rural community. I attended that clinic. I was very courteously received by the Director, who spent a good deal more time with me than he could afford to, I know, and I went over the work that was going

on rather more carefully than the casual visitor could have done. The staff of medical men who were there to do the work was excellent. Some of them are my personal friends. They were all good men, but they were not any better men than were available in the immediate vicinity in which the clinic was held.

That brings up the point which Dr. Hunt made a few minutes ago, that when a man is designated by the State Department of Health as a specialist in a particular line, he gets a certain amount of prestige from that which he probably does not deserve above his neighbor who is not so designated by the State Department of Health. There was some criticism by the local men of the singling out of these other men as a little bit better or a little bit above the local practitioner.

This clinic was held for three days. The chemical laboratory equipment was very good, the X-ray laboratory equipment was very poor. The equipment may have been good enough, but it did not work very well, the results were not satisfactory. They examined a great many urine and blood specimens in the laboratory, and I believe they were well done. The work that was done in the various departments, by the men in charge of them, I can only sum up by telling you of reports which were made at the meeting of the Orange County Medical Society in the early part of this month. I attended that meeting and listened to them.

Three men reported 90 patients referred to the clinic, with the following results, that out of the 90 patients referred, on 7 they had information which was helpful to the physicians but on the 83 no diagnostic aid was secured by referring these patients. This carries no criticism of the work of the doctors of the clinic. It is, to my mind, merely an evidence that the clinic was not necessary. The local men had already exhausted diagnostic methods and had made diagnoses, which the clinic merely confirmed. In other words the residents of the Goshen district were well taken care of by the local physicians.

One man having referred an old poliomyelitis case was told to send him to Boston and have a tenotomy done. Now I think they do tenotomies in New York, I do not know, but I think I have heard of it. This particular advice is another evidence of the possible injustice to others when the officially designated specialist enters the field of practice.

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There is another point which I wish to bring out in reference to this clinic, and that is that these gentlemen who attended and took charge of the work received for their compensation \$25 00 per day. Now, they were away from their work for three days each. No man can afford to be away from his work for three consecutive days for \$25 00 a day. It simply means that the medical men in this particular instance were bearing the expense of the clinic there, just the same as they bear it in dispensaries in the cities. They were giving up their time for inadequate compensation. It seems to me that that is an economic point that we should make in considering, if these clinics are established, how they should be managed.

Now, then, we have been objecting, I do not know whether we can offer any constructive criticism or not, but I am going to try. My experience with the country doctor and the country patient is not that the latter gets inadequate medical attention. The medical attention is just as good as it is in New York City. If laboratory facilities were near at hand to help in diagnosis, the doctor would make just as good a diagnosis as he does anywhere else. But the trouble is—and this is true in New York as well as it is in the country—that the cases are not properly followed up. I would like to make a point of differentiation between actual medical service and social service, as you might call it. Suppose I have an epileptic come to my office from a family that is not able to keep a special nurse. This patient receives medical treatment, he gets advice regarding his diet and his exercise and his way of living. He can take his bromides and other medication and it will not do him very much good unless his general hygienic condition is taken care of, unless he follows out the régime which I lay down. At this point some trained person can take up the work and help the patient. That work can be done by a visiting nurse.

Take another example, an acute tonsillitis. We know that cardiac conditions following acute conditions of the throat are common. We also know that over-activity and carelessness have something to do with the development of the secondary conditions. If the patient gets about too soon, is fed improperly, is not given sufficient air and sunshine he is liable to get up a heart condition. It is not necessary that this should be left to the doctor. It can be done better by a visiting nurse working under the doctor's direction.

The work the doctor does is to make his diagnosis and outline the treatment, and then comes in what I would be glad to call a medico-social plan of supervision and control. If you will give

the country districts laboratories, if you will give them a laboratory technician, and if you will give them properly trained public health nurses, you will not need a state subsidized medical profession. It will not be necessary for the salaries of the medical profession to be fixed by anybody, because they will not need salaries.

It does not make any difference what you call it—state medicine or county medicine—as long as the medical profession is salaried, as long as it is subsidized by no matter whom, it is going to keep the right kind of young men out of it. I believe that this sort of system can be followed up with success, and leave the doctor alone, let him continue his present relation with his patient. The patient is going to get along all right, the doctor is not going to be subsidized, and you can get men to go into the rural communities if you give them an opportunity to follow up their work and know what they are doing. The country is not a bad place to live in.

Before concluding, I want to refer briefly to the Chiropractic Bill. I am only using that as a means to get in a suggestion which I have to make. I took this up with Mr. Whiteside briefly asking him his opinion. It is my opinion that if we amend the Medical Practice Act so that no matter what a man wants to practice, whether it is chiropractic or any other thing, he can do so provided he passes the same examination in other things as we do. It will be a good thing for the profession. You know we eliminated the osteopaths when we made the General Medical Examining Board and put an osteopath on it, and it made it necessary for the osteopaths to pass the same examinations that we were compelled to pass, and to have the same educational requirements for entrance to practice.

Now, then, if you make this a specific act against the chiropractor it will probably make it necessary—because bills cannot be retroactive, notwithstanding the fact that the chiropractors are illegally practising—to license every chiropractor who now has his sign out, but if you put it through regardless of the chiropractor and get it on the statute books before the chiropractor is recognized as such, then you will have a good Medical Practice Act, which will protect us from practitioners of that character for all time.

I think that this Society and the State Society ought to make every effort to get behind a bill of that character, and make it general—do not make it against the chiropractor, and I do not believe we would have very much trouble in putting it through. Of course, the quacks would all fight us, but still I believe it could be done.

## DISCUSSION

GEORGE W WHITESIDE, Esq.,  
Counsel Medical Society County of New York

I have no prepared paper or speech. My purpose is, as far as I can, to cover briefly the ground that has been covered so ably by the other speakers, but possibly from a different angle.

I was greatly interested in the discussion by the Health Commissioner and the interest shown by that department in this problem, an attempt a sincere attempt, to make a study of a situation that they regard as serious. Of course, apparently this whole question is made to appear as a rural question, and I do not know whether upstate they are holding meetings on it or not, or whether they are wildly excited about it, or demanding this form of relief. Let us hear from the rural districts on this matter.

Of course we have to look at this great problem of medicine in the state from the point of view of the entire state, and get away as far as possible from sectionalism, get away from the political idea that has done a great deal to put on the statute books of this state poor legislation, both in medicine and in other branches,—the idea of trucking to a certain class in the community, trucking to the farmer or to the laboring man legislating for a class. The time has come it seems to me, when we must get away from that idea, and we must regard the welfare of the entire people of the state, and not simply some privilege seeking class in the community.

The first thing that impresses me in this Health Centres Bill is that it is largely designed to treat the question from the class point of view. I think, however, that back of it are absolutely sincere motives. I was deeply impressed with the sincerity of the speaker who explained the origin of the bill. At the same time—it may not be conscious, and I do not believe it is—back of that bill is a great idea—the idea of forcing upon the medical profession a combination of effort on their part. The weakness that we have displayed heretofore in legislative matters has been due in part it seems to me, to an inability to function as a combination, to express the congregated judgment of a great profession. We have had too much individual expression of opinion. The practice of medicine has been for so long a matter of the individual and so different in its development from the development we have found in industry. In industry the tendency has been toward combination, and where government has come in and intervened against combination, it has been because the combination had acquired such power that it was becoming almost a super-state and required curbing by the government. We have not reached that point in medicine. We have no ill effects suffered from medical combination because at present it does not sufficiently function as a combination. The great function

of medical organization in the State Society and in the various county societies, it seems to me, is to permit the expression of judgment of a great profession, and to blot out the little differences here and there, to express a firm, fundamental primary principle, and omit many of the irrelevancies or the details that only cause controversy.

Now, are we going to express on the Health Centres Bill a judgment on the fundamental proposition, to wit, a proposition that a certain part of the community shall be the recipients of a certain form of combined medical assistance, a combination of medical men not of their choosing not initiated by them, not proposed by them, but rather initiated and controlled by purely governmental sources? That seems to me to be the fundamental question in this Health Centres matter. It may be a wise thing that this bill has come up to impress upon the profession the need of some form of united effort, possibly, in the practice of your art. We have had the efficacy of that form that combination, in all of our hospital work, demonstrated during the war. We have hundreds of modern large centres, where such group systems are in operation. Whether or not that is to become general whether it can be adapted to the needs of the public, seems to me to be the leading question.

I do not think there is any difficulty in supplying the demand for doctors up the state, if the inhabitants there need the attention. You might as well, it seems to me establish through the Health Department, employment agencies throughout the state to furnish cooks and domestic servants, who are just as scarce there apparently as doctors are, as to furnish doctors by that system. Let us supply the country, if you please, for the purpose of argument, all through, and you will find that in every department of life—and medicine is only one department of life—you would have to follow out the same principle of constant supply of constant organization of very expensive forms of operation, to meet what apparently is not a great demand.

As far as going into the rural districts is concerned, doubtless the rural districts will soon be served, under the progress being made by airplane. It will be but a few years when from cities 100 miles distant there will be constant means of transit and such methods of furnishing medical help in emergency. I have very little doubt about it in my own mind, and I think that these centres that this bill would create in certain localities would soon become obsolete. I think, however, that there is nothing better than a discussion of this subject in the medical profession. It may awake the profession to the need of some united effort on its part.

The placing of the profession on the wage basis would soon follow the general operation of a Health Centre law. I have already written on that subject briefly, and have expressed a firm

conviction - The last thing you want in the practice of medicine is a wage plan. You may find it necessary, as we do in law, to change the method of operating, so that you have the benefits of organization in your work. At one time not far back one lawyer did all the work, from the writing of the pleadings to the writing of the brief, the argument and trial of a case. The lawyer today has found it necessary to build up an organization of other lawyers with him, some of whom are on a parity with him, others of whom are employed by him, to do a great deal of the detail work and as a result we have wonderful law organizations in the large cities today. They are built on a plan of absolute business efficiency. They are business propositions, and necessarily so, to meet the demands of a great commercial centre like New York.

The time may come, possibly, when there may be such combinations of physicians as there now are lawyers in the law, and wherein the men may come up and graduate from a relationship of employee to that of partner. I do not believe there ever will be, however, in medicine, a recognized corporate practice of medicine other than one which perhaps must always exist, such as you have in the case of hospitals. I think the medical profession, as far as its organization is concerned, the organization of its efforts and its contact with the public, the treatment of its cases, is undergoing a change. I think that in a very few years radical differences have developed between the conditions that existed then and those that exist today.

I merely suggest these matters as subjects of possible consideration. Of course, we are accustomed to revolutionary changes in this form of government of ours, but peaceful revolutionary changes. We have had constitutional amendments by which the taxing power of the government has been made enormous, so that it might practically mean a capital tax, so that the accumulation of swollen fortunes can be checked. We have extended government powers enormously, and the exercise of police power of government today is greater than it ever was before. The courts are timid about interfering with any legislative act that finds its sanction in the police power. It is a wonderful thing, that practically overrides all constitutional limitations, if the subject matter on which it operates has reasonable relationship to the power that is exercised. That is all the courts inquire into. They will not judicially review whether or not the Legislature should have exercised that power.

That is a thing that we have to watch jealously in this country today. The exercise of the police power over the medical profession is a thing that in the future will have to be jealously watched by the profession, and not simply obstructive measures or tactics resorted to to meet the exercise of police powers by the state that are detrimental

to the profession, but to build up through the organization which you now have, through the committees that you now have, a constructive program for beneficial legislation that will call upon the state to exercise its police power in behalf of the great public, and also not to the detriment of the medical profession.

There was a slight reference made to the subject of chiropractic, as to the position of the County Society in this county on that subject. I would like to state briefly that when that matter was before the Governor for his consideration there was, I should say, a trainload of physicians from New York and Kings and Queens, and other boroughs of this city and from many rural districts and I had the pleasure of enjoying the day with them. It was my privilege likewise to be called upon by the Governor to speak on the chiropractic measure, and to present legal arguments against it, and he seemed to receive the arguments that indicated he was strongly impressed.

## X-RAY TREATMENT OF TONSILS AND ADENOIDS

By W D WITHERBEE, M D

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**F**OLLOWING the suggestion of Dr J B Murphy,<sup>1</sup> I treated the first case of hypertrophied tonsils in December, 1919, at the Rockefeller Institute for Medical Research.

This case, although carefully examined, revealed no changes in the surface, size, or outline of the tonsil, until the fifth week following treatment. The first evidence of the effect of X-ray was a smoothing out of the tonsillar mucous membrane, which very soon resulted in a glazed and somewhat pale surface.

This was followed by a rather rapid decrease in size, which in this case was most apparent in the left tonsil. At the end of eight weeks the left tonsil was seemingly reduced one half and the right one third.

About this time a dose similar to the first was given. Since then and up to the present time this patient has had no further trouble and the tonsils are apparently now both about one fourth the original size.

As soon as the effects on this case became conclusive Dr S L Craig and I started a series of cases which numbered in all about sixty and ranged in age from sixteen months to fifty years.

In this series every patient was required to report for examination weekly. The history of each case was taken, a blood count made, the contents of the crypts plated and colonies of bacteria counted. A drawing of the throat and tonsils was made and notes were taken each time in regard to the progress of the case. Very few of these cases received more than one treatment,

as we wished to determine the time necessary for the X-ray effects on the tonsil, and thus decide on the number of treatments required in a given case

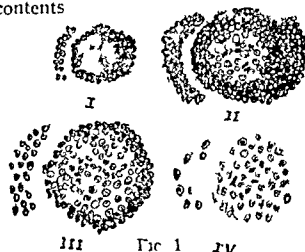
The amount of X-ray used in the experimental series of sixty cases varied from three to seven minutes' time depending on the age of the patient with an 8-inch spark gap 5 milliamperes and 10 inches distance, filtered through 3 mm of aluminum. This dose of filtered X-ray is less than the standard amount used for the past twenty years in the treatment of ringworm of the scalp in children, which fact overcomes the possible objection of any untoward effects on adjacent tissues from the standpoint both of amount and of area of the head exposed.

In ringworm of the scalp five exposures are necessary in order to obtain uniform results of epilation. Only two exposures are necessary in each treatment of tonsils and the maximum dose used is  $1\frac{1}{4}$  skin units of filtered ray, which corresponds to less than 1 skin unit used in temporary epilation of the scalp in children. It is generally conceded by most writers on this subject that the increased size of the tonsil depends directly upon the increase of the lymphatic tissue. The follicles appear larger than normal, are less sharply outlined and usually the germinal centers are quite prominent and contain numerous mitotic figures. Occasionally the lymphoid cells appear to overflow into the interfollicular structures. According to Kellert<sup>2</sup> the hypertrophy of the follicles appears to cause distortion of the crypts, thus aiding in retention of the crypt contents.

The effect of X-ray on lymphoid tissue in the diseased tonsil is exemplified in the diagrammatic representation Figure 1. The destructive action of X-ray on the cells of the lymph follicles of

both the lymphoid and fibroid tonsil are also well outlined.

The sections taken from an enlarged tonsil (Fig 2) and the two made of tonsils enucleated eight weeks and four months after one massive dose of X-ray (Fig 4) indicate the cause of the shrinkage of the tonsil and expulsion of crypt contents.



I Standard lymph follicle II Lymph follicle of lymphatic tonsil III Lymph follicle of fibroid tonsil IV Destructive action of one massive dose of X-ray

The selective action of X-rays on embryonic tissue or its effect on the cell in certain phases of mitosis are the usual methods of describing X-ray effects on diseased cells as compared with normal cells.

The destructive action of X-rays on the cells of these enlarged lymph follicles might also be explained on the ground of their having been stimulated to excessive cell proliferation to such an extent that there remains less resistance to the X-ray than in the normal cell. Therefore this difference in resistance would account for the small dose of X-ray necessary to destroy these pathogenic lymph follicles without interfering in any way with the normal adjacent cells.

The bacteriological report embodied in the following table indicates the possibilities of the bac-



Fig 2

Fig 3



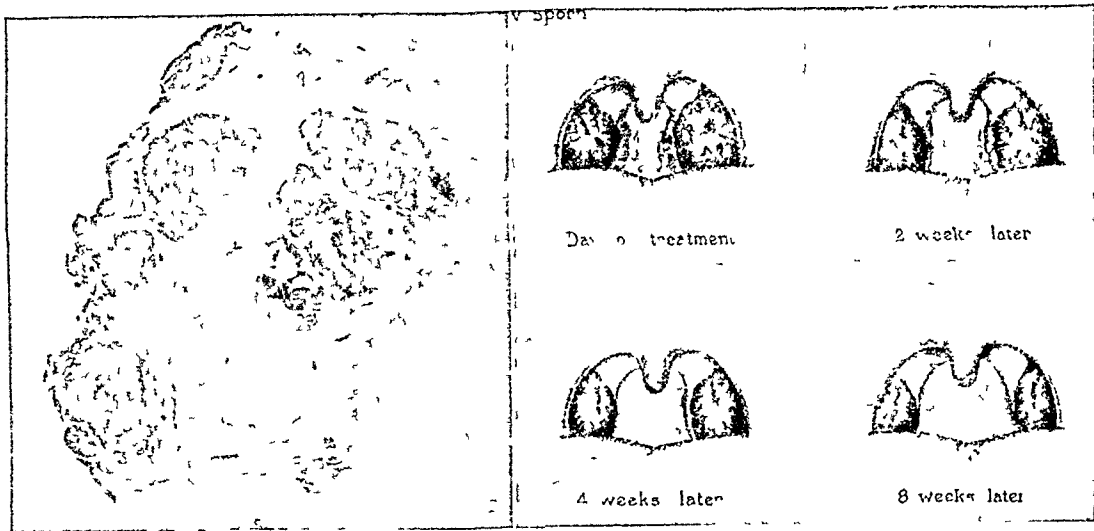


FIG 4

FIG 5

terial cryptic contents after one massive dose of X-ray

March 3, 1920

Right Tonsil,	24 hrs,	50	Colonies	of	Hemo	Strep
"	48 "	100	"	"	"	"
Left Tonsil,	24 "	50	"	"	"	Staph
"	48 "	50	"	"	"	Strep
Vault	24 "	50	"	"	"	Staph
"	48 "	50	"	"	"	Strep
		150	"	"	"	Staph

March 17, 1920—2nd Week After X-Rays

Right Tonsil,	24 hrs,	No	"	"	"	Strep
"	48 "	No	"	"	"	Strep
Left Tonsil,	24 "	No	"	"	"	Staph
"	48 "	No	"	"	"	Strep
Vault,	24 "	No	"	"	"	Staph
"	48 "	No	"	"	"	Strep
		No	"	"	"	Staph

plished with enucleated tonsils by dipping them for one minute in boiling water. Thirty-two out of thirty-six cases showed negative cultures for pathogenic bacteria four weeks after one massive dose of X-ray.

Figure 5 illustrates the diminution in size and characteristic changes in the surface of the tonsil at various periods of time after one massive dose of X-ray.

#### X-RAY TECHNIQUE

Figures 6 and 7, illustrating the position and immobilization of the younger patients give a much better idea of the practical application of the X-ray than the most accurate description. Figure 6 represents a board 4 feet long, 10 inches wide and 1 inch thick over all. The longest piece for the support of the body is 3 feet. The head piece is 1 foot by 10 inches and 1 inch thick with a bevelled opening 2½ inches in diameter. This

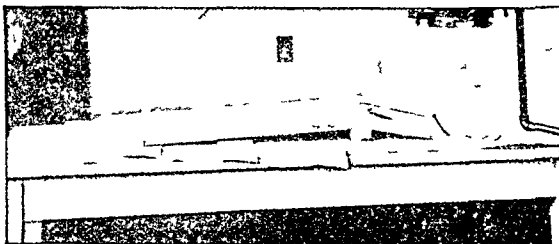


FIG 6



FIG 7

This case and a few others examined three months after X-ray treatment, showed negative cultures for pathogenic bacteria. The results in all cases were not as clean-cut as in this case. This might be explained by the fact that in passing the platinum loop into the crypt no method has as yet been devised whereby the surface of the tonsil can be rendered sterile in order to avoid contamination from the mucous membrane. However, this can readily be accom-

plished with enucleated tonsils by dipping them for one minute in boiling water. The distance from the table level to the apex of the angle made by the union of the head piece and body support is 3½ inches. This angle and inclining head board not only give the position necessary for the direct exposure of the adenoids and left tonsil as shown in Figure 7 but also include the right tonsil and adenoids as the rays pass on through the opposite side of the head and neck.

This position can be assumed by the adult patient with the proper placing of pillows or cushions without the use of re-training strips and board so essential in the treatment of young children.

By maintaining the above position and placing the X ray tube at the proper angle in both children and adults it is evident that each tonsil and the adenoids receive two doses of X-ray.

The opening in the lead foil as in Figure 7 should be not less than 3 inches by  $2\frac{1}{2}$  inches for the average case. Figure 8 represents the area of exposure, and illustrates the area and position of the patient when a third exposure is considered necessary for cases with extensive growth of adenoids.

#### DOSAGE

In the experimental series of sixty cases treated at the Institute the following factors were used with 3 mm of aluminum: 8 inches spark-gap, 5 milliamperes and 10 inches distance and from 3 to 7 minutes' time for each exposure depending on the age of the patient.

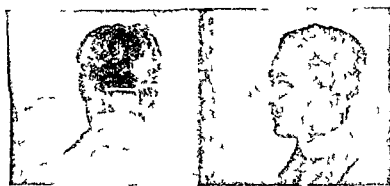


Fig 8

From the experience with these cases and subsequent treatment of other cases, fractional dosage seems to promise better and more uniform results than the single massive dose used in the above series.

It therefore seems advisable to give each case at least four treatments as a minimum, using the following factors every two weeks: 7 inches spark-gap, 5 milliamperes, 10 inches distance and 3 minutes, 18 seconds time through 3 mm of aluminum. These factors give 1 skin unit of filtered ray, which corresponds to  $\frac{1}{2}$  skin unit unfiltered in effect on the skin. The same result may be obtained by producing 1 skin unit of filtered ray with a 6, 8 or 9 inch spark-gap, 5 milliamperes, 10 inches distance with 3 mm of aluminum, or if necessary 1 mm of aluminum could be used instead of 3 mm to save time, especially with the small (2 K W) interrupterless machines where a 6 inch gap is maximum. The factors for 1 skin unit with 1 mm of aluminum would be 6 inches spark-gap, 5 milliamperes, 10 inches distance and 2 min 41 sec time.

The next best method would be two or three massive doses given with four to six weeks' intervals.

#### DANGERS OF FAULTY TECHNIQUE

Before leaving the subject of dosage it is necessary to point out clearly that anyone contemplating carrying out this technique who does not thoroughly understand the part played by each of the four factors of dosage and who has not mastered his machine and tube so that all four factors are constantly maintained throughout the exposure will sooner or later produce an X-ray burn with its consequent permanent deformity and tendency to epitheliomatous degeneration. The only contraindications to the immediate use of X-ray are recent radiographs of the region to be exposed, recent X-ray treatment, the external application of any liniment, ointment or lotion other than vaseline, lanolin or cold cream. It does not seem advisable to give X-ray treatment during the active stage of an acute infection or immediately after applying nitrate of silver iodine or any local irritant to the tonsil.

With the present day methods of measuring X-ray dosage and the constancy of the Coolidge tube and interrupterless machine, the dangers of the gas tube and the X-ray coil are practically eliminated. A Doctor's degree years of experience in nose and throat or even in radiography (X-ray plates) do not automatically fit any one for the practice of X-ray therapy.

On the other hand if the treatment is properly given as indicated and the time lessened in both the massive and fractional methods of dosage in accordance with the age of the patient, there is not the slightest danger of injuring the skin or any of the adjacent structures as exemplified in the results obtained for the past twenty years in the treatment of ringworm of the scalp. The immediate and after-effects of excision of the tonsil seem severe as compared with the X-ray treatment which may produce dryness of the throat and a feeling of stiffness in the muscles of the neck. These symptoms are only apparent to the sensitive individual when the massive dose is used.

The extent of any after-effects of discomfort might be explained by citing the case of a young man to whom I gave three massive doses between 4 and 5 P. M., and that night he won the one-mile amateur championship in a local armory.

Recently Dr Thomas R French<sup>4</sup> has emphasized the presence of chronic infectious material in the crypts of the infratonsillar nodule as a possible source of systemic infections, and advocates their removal even though the operation is more extensive than that of tonsillectomy.

The infratonsillar nodules or tonsillar branches (Fig 9) may overlap the under surface of the posterior lateral halves of the inferior lobes of the tonsil.

Those structures frequently referred to as infiltrates or recurrent tonsils are really nothing

more than extended and expanded ends of these lymphoid bodies. The fossa, or space between the pillars left after removal of the tonsil, may be subsequently filled by the infratonsillar lymph nodule with its infected crypts. The infratonsillar nodes may progress in size as the tonsils themselves diminish or atrophy. These nodes in some cases may be larger than their associated atrophied tonsil.

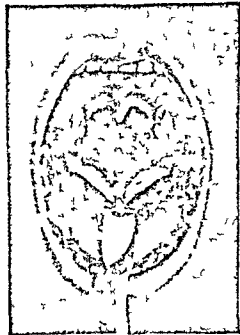


FIG 9

tonsil, as indicated in the above article<sup>4</sup>, with the results so far obtained with X-ray on tonsillar tissues, does it not seem reasonable to infer that not only will cases treated with X-ray have their tonsils reduced and crypts evacuated, but that the same process will prevail in the infratonsillar nodule, thus more thoroughly removing the focal infection than by tonsillectomy and that by this means better results will be obtained in combating those systemic infections dependent on this condition, namely, rheumatism, endocarditis, chorea, septicemia, etc?

The results of the study thus far open up possibilities of the X-ray in connection with tonsillar disease. One hopeful assistance is in the diagnostic value in determining the relationship between the focus and a given systemic infection, more especially those infections in which pain is a prominent symptom. If the bacteria are the causative factors of such pain, it would stand to reason that their evacuation would be followed by partial or complete relief. In such an event the most rational treatment could be definitely decided upon. Another hopeful assistance from the X-ray is to be considered in the possible evacuation of bacteria from the crypts of the tonsil in carriers, especially those of diphtheria and influenza. For it is hardly to be supposed that these bacteria would recur after such evacuation except by reinfection.

#### CONCLUSIONS

It would seem probable that X-ray treatment will be indicated in cases of diseased tonsils and infratonsillar lymph-nodes associated with chronic endocarditis, pericarditis, hemophyia, or any co-existing conditions which contra-indicate operation or an anæsthetic.

We know that after tonsillectomy in subjects above the sixth or eighth year, and especially in adults, there still remains a considerable and possibly a vast amount of diseased lymphoid tissue containing pathogenic bacteria, in which cases it

would seem reasonable to believe that the X-ray will prove to be of value.

It must be understood that this paper is only suggestive, and that the permanency of the results time alone will determine. But the facts in so far as the experimental work has been carried out are presented.

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#### PARA-SPECIFIC THERAPY IN SEVERE OCULAR INFECTIONS \*

By BEN WITT KEY, M.D.,  
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**P**ARA-SPECIFIC therapy as an aid in medicine has been variously exploited and criticized since its inception. This is especially so because its manner of effect is not clearly understood, the theory of its action in the body is contrary to former bacteriologic and physiologic principles, and because its value as a therapeutic agent, if indeed it should prove to be valuable, would be an illuminating fragment of new and permanent knowledge wrest from the great mass of the still unknown in medicine. Health is said to be the ability of the body to balance and combat a hostile enemy. And yet only the discourses of metaphysics can compare with the complexities wrapped in this simple statement, both the science of health and metaphysics being dependent upon the interpretation of truth and Aristotle's maxim that "nihil est in intellectu quod non prius in sensu." It is my attitude, therefore, and I believe it should be that of every physician seeking the truth in medicine,—the attitude of investigation and study and criticism, not that of advocacy of a cure, or of credulity, or of blind acceptance of apparently favorable clinical results. At the same time to combat and discard a new theory, without investigation, but merely because it does not meet the known approved theories of the past, is to take a stand even worse, in my opinion, than that of gullibility. If one knows nothing of a subject, he is prepared for faith, preconception, conviction, if one is satisfied with his knowledge of a subject, his position is that of the skeptical, the

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 24, 1920

combative, the prejudiced. May I, therefore, ask your attention and consideration of a study, an investigation, in which we should attempt to analyze *effects* as well as to observe and establish results. For on the one hand, a hopeless infection of an eye treated by every means, including serum, will yield no favorable result, although numerous beneficial effects may be noted in the process. While on the other hand, in an infection, severe or mild, capable of being cured if relieved with the aid of serum it can be claimed that the result would have been the same had no serum been employed. Only then otherwise unexpected favorable *effects* and response to injections in innumerable cases from reliable observers can be of any value in such a study as this.

It is my purpose to present in this paper a further study of the subject of para-specific therapy, but especially as it concerns the effect of anti-diphtheritic serum upon severe ocular infections, the history and analysis of which I exhausted in the literature of the subject, and presented in a thesis, published in *The Archives of Ophthalmology* November, 1919.

The theories in explanation of the effect of para-specific therapy may be briefly stated as follows. Darrier and the majority of his followers maintain that para-specific therapy is a means of defense of the organism in certain infections local and general that anti-diphtheritic serum is the most trustworthy of the serums employed, because of its potent eutrophic, stimulant and anti-infective properties. They claim that its action on the organism is by its potent effect upon all the 'anatomic elements' by placing it "in a state of defense distributed, each after its manner, in the circulation—antitoxins, immunisms, and antibodies. The glandular elements—thyroid, suprarenals, spleen, liver, testicles, and lymphatic nodes as well as the nervous, muscular, and osseous tissues, are all in a state of organic hyperactivity." Predtetschensky insists that anti-diphtheritic serum contains "stimulins" (substances that stimulate leucocytic activity) as do certain other substances such as concentrations of nucleic acid, etc., and also horse-serum (Axenfeld). Peabody, Rosenberger and Randle call attention to the effect of anti-diphtheritic serum upon meningococci, and state the effect is 'antagonistic' and inhibits their growth similar to the action of certain microbes in nutritive media in consequence of the presence of other germs. Deutschmann has reported numerous experiments with his yeast serum upon animals after infecting the anterior chamber with staphylococci streptococci pneumococci, or tubercle bacilli and he claimed the effect was markedly favorable in the rabbits infected with pneumococci. M. Neisser discovered that yeast serum stimulates somewhat in the vitreous the action of leucocytes against staphylococci, thus increasing phagocytosis. The partisans of para-specific

serum therapy do not deny or doubt the specific nature of antitoxin and of the other specific antibodies but they do adhere to the theory of para-specificity, because the process of anti-bacterial immunization is by no means explained by hitherto ascertained specific effects and go so far as to claim that probably the whole therapeutic effect of streptococcal and pneumococcal sera and others, is an effect that may not be in itself sufficiently specific, but also acts by its non specific stimulating and other properties. Anti-diphtheritic serum anti-tetanic, yeast serum, and normal horse serum are said to act similarly on the human subject. Of these anti-diphtheritic serum has been the most popular, although whatever effect or advantage is claimed of one is accepted as an argument to some extent in favor of all—the theory of para-specific therapy.

Opposed to these theories, Axenfeld (Freiburg) Happe, Von Szily, Napp, Von Michell, Roemer, E. Janson, Bietti and Cavara all of whom, because of accumulating favorable clinical reports have made numerous experiments on animals and have concluded in every instance that the use of anti-diphtheritic serum in non-diphtheritic conditions of the eye is opposed by the accumulative evidence of the strictly specific reaction of the tissues against poison and foreign substance of every kind, also that it has no effect upon the opsonic index of the experimented animal nor does it increase agglutination or complement fixation, in other words that purely experimental observations have not demonstrated that diphtheritic antitoxin is able of itself to combat non-diphtheritic ocular infection. Axenfeld however admits (*Ophthalmic Review*,

28 1909) "that clinical observation on human subjects must always speak the decisive word although by it no mathematical certainty can be obtained and also something of subjectivity always clings to it. It is possible that a result which we do not obtain in animals may nevertheless occur in the human body."

Since 1907 European observers have constantly reported innumerable favorable effects and results from the use of para-specific therapy—particularly anti-diphtheritic serum. Of this group Darrier has been the leader, having employed it in hundreds of cases and with results that appear unusual. His experience dates back to 1904. In *La Clinique Ophthalmologique* he repeatedly defends himself and his convictions and in this publication for 1910, p. 131, he states that his own enthusiasm over this subject had been experienced and met with almost simultaneously in Germany and France, entirely different serums being employed by other observers and that specific effects obtained by Roemer with his anti-pneumococcal serum were not as numerous or as conclusively favorable as those obtained by himself with anti-diphtheritic serum or by Deutschmann, Von Hippel and Zimmermann with yeast

scrum and horse serum, and furthermore, that the cases were now so numerous that there was no longer any doubt as to the real efficacy of para-specific therapy. In 1907 Deutschmann published his experience with his yeast serum, and since that time has reported results so striking, that he has been taken to task on numerous occasions for statements difficult of acceptance. Following these reports of results, many investigators gave expression to their favorable experience with the therapy, in 1908 M. Teulieres, Zimmermann (Goerlitz), Antonelli, Baillart, in 1909, Scheuermann, Dehenne, Dorr, Deschamps, Heydar-Bey, Angiolella, Frogier, J. S. Fernandez, in 1910, Deutschmann, Von Hippel, Alexandroff, Menacho, Jacqueau, F. M. Fernandez, Yvert, Piccaluga, in 1912, Kasas, Meyweg, Darier, Janson and Dorr, and since 1912 besides the above mentioned, R. Solm, Ribas Valero, Frogier, Lafont, Dupont, Heckenroth, Maitland Ramsay and others have added their results to the total of numerous favorable observations. In 1908 Axenfeld threw a chill over the enthusiasm of those reporting such brilliant clinical results without experimental evidence to prove what they claimed and appealed for a higher standard of experimental and clinical work. This warning from so conservative and distinguished a contemporary brought forth a flood of experimental and intensive clinical study, indeed, too voluminous to relate here. Very recently in the proceedings of the Ophthalmological Section of the College of Physicians of Philadelphia, October 16, 1919 Dr. de Schweinitz reports a case in which, after intensive local measures had been used in a case of hypopyon keratitis without arresting the progress of the infection, thirty hours after an injection of 1,500 units of anti-diphtheritic serum an improvement was noted, and the condition subsided after further stimulation by additional serum injections. Dr. C. W. Cutler has recently employed the serum in a hopeless type of uveitis and which resulted in apparently very favorable effects. Dr. L. Webster Fox has from time to time injected anti-diphtheritic serum as a prophylactic measure in operative cases exposed to or believed susceptible to infection. These are the only American observers whose experience with para-specific therapy in ocular infection has come to my notice.

Diphtheritic antitoxin has been administered hypodermically, intra-venously, by mouth and by sub-conjunctival injection. It was first employed, as was originally intended for specific purposes, by hypodermic use, and it was through this method that its apparent beneficial effect was first noted. Intra-venous administration has not been advocated by anyone. Through a larger experience, evidently as a result of anaphylactic effects in certain cases, the oral administration has been strongly urged by its most ardent supporters, with the assurance that no general ill effects have

been observed from this method and that clinical results are equally as good. Undoubtedly there have arisen anaphylactic effects sufficiently alarming to suggest the oral administration of the serum, although I have failed to find such reports in the literature. Many have observed a slight rise in temperature, to 103, with some gastro-intestinal disturbance, occasional erythema, joint-pains, restlessness, etc., but which disappeared rapidly and without serious consequences. My own experience has shown an almost constant rise in temperature, varying from 99 + to 101, following an injection of 2,000 units, other general symptoms have been of no importance. The injection is given at the earliest possible moment after admission to the hospital. I have injected 5,000 units at a dose and noted no more definite change than when 2,000 units had been given. I have also observed as has Zimmermann (Goerlitz), that if an effect is not noted in forty-eight hours, other injections do not appear to be as effective as when a definite change follows the first injection. My experience has shown that the interval between injections should be at least forty-eight hours. Daily small doses of 500 to 1,000 units have not seemed to be as effective as 2,000 to 3,000 units every two or three days. Furthermore the effect of an injection is transient and not at all cumulative, as is borne out by lapse of treatment, and further response to injection. Together with administration of the serum, many forms of local treatment have been employed, depending for the most part on the severity and extent of the involvement. I have limited local treatment to hot fomentations, atropine and antiseptic measures, in hypopyon keratitis, however, multiple incisions are made through the base and margins of the ulcer after the method of Veerhoff (i. e., by means of a small Graefe knife, held with the cutting edge upward, forward multiple incisions are made through ulcer into its base and margins all incisions crossing at center of ulcer) so as to freely open the infected substance and especially to expose the undermined margins of most active involvement. This is accomplished frequently without perforation, though perforation is not avoided at the risk of insufficient opening of the infected area. The ulcer is now cauterized with concentrated carbolic acid followed immediately by alcohol 45 per cent, after the classical method so commonly used.

The broad field of usefulness to which para-specific therapy may be employed, should it deserve a place in ophthalmic therapeutics, is quite evident even to the casual observer. It has already been administered for disease of almost every anatomic element of the eye, also for the different infections to which it is exposed, as well as for prophylactic purposes. It has been employed in dacryocystitis and phlegmon of the sac, recurrent stytes, persistent ulcerative bleph-

aritis, purulent and other types of conjunctivitis including trachoma, purulent corneal ulcer, hypopyon keratitis and abscess of the cornea, interstitial keratitis, iritis (especially traumatic and purulent), irido-cyclitis, abscess of vitreous, neuro-retinitis, panophthalmitis, and orbital phlegmon. Infections in which it has received most praise, include especially diphtheritic, pneumococcal and staphylococcal processes, where as it has been tried out in all, even syphilitic, gonorrheal and tubercular infections of the eye. For prophylactic purposes, it has been used in cases of penetrating wounds and pre-operative conditions with infection of conjunctiva or lacrimal passages. No statistics, however, bearing upon its effectiveness in this indication have been published to my knowledge, but it has been urged on the theory of its curative value and upon the basis of its prophylactic influence from specific effects, as in the case of antitetanic serum. An indication of some importance is that suggested by Darier, who emphasizes the benefits to be obtained by the early administration of anti-diphtheritic serum, which is always available, during the period in which a bacterial diagnosis is being made of a critically infectious condition. It is in these cases that early treatment is most needed, and to delay, while the bacterial diagnosis is being made and an autogenous or specific vaccine or serum is being prepared or procured would lose valuable time in which perhaps irreparable damage and even loss of the globe may take place. Especially in penetrating wounds (traumatic or operative) with clinical evidence of infection presenting, it is especially emphasized as being of exceptional value. I have had occasion to see this indication demonstrated in two striking instances. It is the involvement of the refractive media, non vascular structure, which taken together, form by far the greater part of the eye ball and in which bacteria flourish in an unusual manner that para-specific therapy seems to be most effective. In corneal ulcer and abscess, hypopyon keratitis and infections of the anterior segment from penetrating wounds actual curative processes have been insisted upon, while in panophthalmitis, curative reactions and amelioration of symptoms have been noted by many clinical observers. Staphylococcal and pneumococcal infections have been consistently affected by the serum while streptococcal infections have not responded at all. Its effect upon syphilitic, gonorrheal and tubercular infections has not been consistent in any degree, but where these infections are treated in the presence of a pneumococcal or staphylococcal process in a non-vascular structure of the eye, the systemic condition has not seemed to prevent the usual effect of the serum upon the local infection.

In addition to the series of thirty cases (23 hypopyon keratitis, 2 infections after penetrating wounds, 4 panophthalmitis, and 1 ulcer serpens)

reported last year in which I employed anti-diphtheritic serum, I have had occasion to study since that time a series of 14 cases of the most critically infectious type. Of these 7 are hypopyon keratitis, and 7 infections after penetration (accidental 5, operative 2) (panophthalmitis).

A brief analysis of the seven hypopyon cases, shows apparent serum effect with quite satisfactory results in four of them. In two cases (No I and VI) no effect whatever could be detected, in one of which no cause could be attributed both blood and spinal Wassermann's negative, but in the other case the active ulceration disappeared, though a degenerative type of process (rodent ulcer?) continued in a well advanced anæmic and nephritic individual. In one case, No III, in which it was attempted to administer no treatment but serum it was observed that the ulcer progressed in spite of 5,000 units of serum, intense local treatment was then added to serum treatment and without effect, but removal of the focus of infection by incisions and cauterization relieved the condition at once. Although the pneumococcus was not cultivated from this case, but Pettit's diplobacillus liquifaciens reported from the laboratory, it is one case on record to show that no effect whatever was observed, even with local intensive treatment, until the focus in the cornea was directly attacked. In four cases (No IV, V, VI, VII) pain was definitely relieved and the reaction reduced. Hypopyon disappeared following infections in four cases, recurred in three cases and disappeared in response to serum injection alone. A definite clearing and transparency of the anterior segment occurred in five cases (No II, III—after cauterization—IV, V, VII) and in these cases rapid repair of corneal substance was evident, especially so in four of these (No III, IV, V and VII), No III being discharged in 23 days after cauterization, No IV total time in hospital 16 days, No V, 7 days and No VII 12 days.

An analysis of the seven cases of infection after penetration, shows a number of interesting effects. In all the cases but one, there was relief of pain, diminished reaction, a quieting of the infection as though transformed from a violent inflammatory one to a milder chronic process. Very noticeable also was the clearing and transparency of the anterior segment of the eye with disappearance of hypopyon, although the inevitable destructive process was present in the vitreous chamber. In case No II the infection was confined to the anterior segment which accounted for the fact that the globe was preserved. An interesting observation which had escaped my notice till recently but which on investigation I found occurred in all the cases I have studied both in this series of fourteen cases and in the series of 30 cases previously reported is the moderate elevation of temperature which almost invariably follows an injection of 2,000 to 1,000

units of serum. The temperature varies from 99 to 101. This reaction has not occurred constantly, and while it may not be of any importance, since it is reasonable to expect it, at the same time it is quite significant of the theory of a systemic hyperactivity of the tissues in response to a highly potent foreign protein, or stimulant or antagonist or para-specific action of the serum in the organism, any one or all of which it may be. The physiologic action of anti-diphtheritic serum deserves very careful experimental study in this connection, that more definite information concerning these properties may throw more light on this important subject.

As to the theory of effect of anti-diphtheritic serum against ocular infection, it is necessary to refer you more definitely to my discussion in the *Archives of Ophthalmology*, Nov., 1919, for time does not permit in which to present it here. It will suffice to refer only to salient points in that discussion. It must be remembered that this therapy was not born of one man or two, but of a number, working along similar lines in different countries and with different products as a para-specific agent, each wholly unaware for a time (1905 to 1907) that the same theory was being studied by his contemporary. Moreover, the whole theory of resistance and immunity during the past ten years, has become more and more complicated the more is learned about specificity, foreign proteins, activating elements of human serum, blood-cell energy, and the "kinetic" and other forces of internal secretion.

Is it a fair judgment to conclude from experiments on animals similarly infected, that in man the serum is without value? And on the other hand is it a fair conclusion from purely clinical observation on cases in which intensive local treatment has also been employed, that the serum has real curative properties? This seems to me to be the crux of the situation and leaves the question in the open. It is, of course, impossible to furnish absolute proof of the effect of the serum as having curative properties against pneumococcal infections of the non-vascular structures of the eye, but much evidence is furnished to indicate that it has, although it is not at all proposed as being the cure or even able to successfully combat alone an infection without the assistance of local measures. Tuberculin had not been accepted as a valuable agent in ophthalmic therapeutics until recently, and it is not now regarded by the bacteriologist or general practitioner as of much practical value in general medicine. In fact, the acceptance of its efficacy in ophthalmology now is based upon clinical evidence and not at all upon experiments on animals. Anti-tetanic serum because it was not sufficiently and definitely curative in its effect threatened for a long time to be lost as one of the most valuable of prophylactic agencies, when its real value was being put to the test through

tireless experiments, because it did not meet the full bacteriologic and therapeutic laws required for a cure.

It is contended that strong toxins such as diphtheritic or tetanus toxin, excite all the organs of the body to the production of antibodies of all kinds, not merely to the production of diphtheritic anti-toxins, thus making the serum effective in more than one kind of infection. Loeffler first pointed out that the normal cornea shares in general bacterial immunity, Roemer has shown it to be true of pneumococci, and Ehrlich and Roemer proved it in regard to antitoxic immunity to the toxin of diphtheria. It is also recognized through the work of A. Leber, Roemer, Zur Nedden, and others, that receptors of the first order (anti-toxins, agglutinins and precipitins) pass in small quantities from the blood into the aqueous humor, on the other hand, receptors of the third order (bactericidal substances, opsonins, hæmolysins, and cytotoxins) do not at all pass normally into the aqueous. The entrance of the latter into the aqueous has been proved after penetration, or irritation by injection, or heating, or chemical effects, and particularly in the presence of an inflammation. The vitreous is believed to share so slightly in any kind of immunity that, except under subconjunctival injections or violent inflammations is there any evidence at all of the presence of immune bodies. Is it not probable that since specific serums are known to act efficaciously in the vascular structures and not with the constancy that para-specific serums act upon non-vascular structures, there is a reason here in the anatomic structure that may be explanatory of a theory not yet understood to account for the therapeutic effect of anti-diphtheritic serum upon non-specific infections of the refractive media. What is the change that takes place in the cornea, aqueous and adjacent structures, and causes the absorption of hypopyon of 1½ mm deep in twenty-four hours after an injection of 2,000 units? The abrupt disappearance of hypopyon with a clearing of the anterior segment is one of the most unmistakable and distinctive changes that is noted in an infectious process affected by the serum. Therefore to advance a theory that would satisfy this hypothesis, should come reasonably near the solution of the effect of the serum. The composition of hypopyon is well known. In process of its formation it is believed to be an element of protection, defensive in the course of the combat, and is always significant of danger of deeper involvement or progress of the infection. That its disappearance is due to and significant of improvement in the invading process should be reasonable ground, therefore, upon which to base a cause for the improvement. One must keep in mind that hypopyon may disappear spontaneously without treatment, in which case it is believed to be due to the natu-

ral forces of the tissues to overcome an enemy of weaker virulence. Again it may disappear under simple local stimulative measures when it is concluded that the natural forces, by the aid of local treatment, checked the invasion of an infection more virulent than the natural forces of the tissues can alone combat. Also it may disappear after local stimulation and removal of the contents of the infected area or by cauterization of it when it is reasonable to believe that these measures directly applied gives the advantage to the natural forces of the tissues to overcome an infection whose virulence is far superior to the normal resistance of the particular individual. And so one observes that, by numerous means of increasing or stimulating the natural forces of defense, and by means of attacking the infection by direct removal or killing of the bacteria, or by weakening their virulence, hypopyon disappears and repair is forthcoming. The following questions now arise: (1) Does the serum increase the natural forces of resistance? (2) Is the serum bactericidal? (3) Does it weaken the virulence of the invading organism? It is obvious that these questions can be approached only by those with physiologic and pathologic laboratory facilities and training on the one hand, and by the clinician empirically on the other. A correlated study of this sort may eventually bring forth acceptable explanations of the theory of effect. One must remember that in dogmatic science the validity of laws based on inductive reasoning depends on the number of observations from which we draw our conclusions. Although medicine is fast becoming a mathematical science which is entirely based on deductive reasoning, save in certain of the more abstruse departments where solutions are arrived at largely inductively.

To what extent can we depend on anti diphtheritic serum as a para specific remedy? Where the case is seen early and serum injected, crutery or Saemisch may be prevented, due to an early checking of the disease process. Herein lies its most important therapeutic value. And, furthermore where the process of involvement is advanced and the cautery or knife is indicated, early relief of pain and diminished reaction follows as does also a rapid clearing away of ulcer debris, and final opacity of the cornea is reduced. One does not reasonably expect the serum to alone overcome a virulent keratitis, any more than one would look for a cure of dacryocystitis even of a low virulent organism, and treated by strong antiseptic measures with high tissue resistance, if the mechanical factor is not removed by the establishment of drainage into the nose. In the same manner proper drainage of the cornea and anterior chamber is necessary where conditions of high virulence of the organism or an advanced process are present. Its prophylactic effect, if any, can not be fairly or at all judged

by previous experiments or clinical observations, for it is obvious that innumerable experiments and long research must be made for this purpose, in order to draw comparative statistical results of any value.

I wish to express my thanks and appreciation to Dr W. L. Lambert for the privilege of studying a number of these cases which were patients on his service at the N. Y. Eye & Ear Infirmary, and to Dr Geo. H. Bell for the analysis of one case on his service, and to Mr. Edward Burchell for his care and patience in the examination and cultivation of purulent material taken from ulcers and from the contents of infected globes in these cases reported.

#### CASES

(I) Wm. B., 66 yrs. Hypopyon Keratitis. Admitted to the New York Eye & Ear Infirmary on Dr. Lambert's service, Feb. 17, 1919. History of injury to O. S. one week before. Examination: Central deep ulcer of cornea ( $1 \times 2$  mm), very active deep infiltration, entire cornea hazy, hypopyon 2 mm deep, iris contracted to small pupil, pupillary space filled with exudate, vision, fingers two feet. Pneumococcus cultivated. Treatment and Course.—On admission multiple incisions were made through ulcer without perforation, then cauterization with carbolic acid (conc.) and alcohol 45 per cent, 2,000 units anti diphtheritic serum injected hypodermically, and usual hot fomentations atropine, bich. val. 1-5,000 and dressing. Following day, increase in ulcerative area, hypopyon increased, pain relieved, 1,000 units injected. Feb. 19th no improvement, 1,000 units. February 20, unimproved 1000 units. Feb. 24th ulcer progressing 1,000 units, second Wassermann negative, urine negative. B. P. = 160 systolic, phys. exam neg. hist. of chronic alcoholism. Feb. 25th, ant. chamber collapsed extensive ulceration upper half of cornea. Repeated cauterization with bich. 1-5,000. Lumbar puncture fluid negative to Wassermann and globulin. cells neg., Fehlings +. Feb. 27th 500 units. Mar. 4th, 2,000 units. Mar. 8th, 1,000 units rapid repair, Leucomia adherens. Discharged Apr. 18, 1919.

Remarks: No apparent serum effect except relief of pain though 9,500 units injected.

(II) M. P., 37 yrs. Hypopyon Keratitis. Admitted on Dr. Bell's Service Feb. 26, 1919. Foreign body two months before. Deep central active ulcer ( $2 \times 2$  mm), deep infiltration, intense reaction and chemosis hypopyon 3 mm, iris partly dilated from atropine, pupillary space obscured. On admission, usual local treatment, 2,000 units (temp 100). No effect. Mar. 3d 2,000 units (temp 101.4). No improvement. Mar. 8th 4,000 units (temp 100.1). Mar. 10th, Sub conj. injection salt sol. Mar. 11th hypopyon diminished, 1,000 units. Mar. 14, hypopyon disappeared.



Remarks 4,000 units injection may have been effective

(III) A S, 57 yrs Ulcus Serpens Admitted Mar 31, 1919 "Sore eye" one week Central deep ulcer (1 x 2 mm), no noticeable undermining, but active process and broad area of infiltration about ulcer, usual reaction, no hypopyon vision 10/200 Cultures showed *Petis diplobacillus liquifaciens* On admission, no cauterization but 2,000 units, atropine 1 per cent t i d, and hot saline irrigations t i d, no antiseptic medication whatever Following day, Apr 1st, no change, 1,000 units Apr 2d, ulcer spreading, corneal infiltration increased, 1,000 units Apr 3d, unimproved, 1,000 units Apr 4th chemosis of conj increased, line of hypopyon appeared Now hot fomentations and antiseptics employed Apr 6th, hypopyon increased to 1 mm but arrest of ulcer activity, 1,000 units Apr 7th multiple incisions through base and margins of ulcer, and cauterized with carbolic and alcohol Apr 8th, intensive local treatment 1,000 units Apr 10th, hypopyon reduced, definite improvement Discharged Apr 30th Leucoma corneæ

Remarks No effect whatever apparent from serum alone, or with intensive local treatment, but rapid improvement when focus in corneal substance attacked by incisions and cauterization

(IV) Wm T, 63 yrs Hypopyon Keratitis Admitted May 12, 1919 O D blind from explosion 15 yrs before, O S foreign particle 5 days before Central deep ulcer ( $1\frac{1}{2} \times 1\frac{1}{2}$  mm), undermined margins and deep infiltration, other cornea diffusely hazy, intense reaction, hypopyon 2 mm Vision, O D no light perception O S = fingers 2 feet *Pneumococcus* cultivated On admission, ulcer incised and cauterized, 2,000 units, usual local treatment May 14th (48 hours after) pain relieved, ulcer clearing hypopyon reduced to a line, less reaction May 15th, 2,000 units (temp 100) May 16th, hypopyon disappeared, cornea clearing, 2,000 units May 19th, 2,000 units May 20th, no hypopyon but active reaction May 23d a line of hypopyon returned 2,000 units May 24th, hypopyon disappeared less reaction, uneventful recovery Discharged May 28, 1919, leucoma corneæ, and subsequent optical iridectomy in his only eye gave 20/40 vision with correction

Remarks In this desperate case, serum appears to have been effective, in hospital 16 days, 10,000 units

(V) M T 35 yrs Hypopyon Keratitis Admitted June 2, 1919 Foreign body in O D five days before Small deep central ulcer  $1 \times 1\frac{1}{2}$  mm, usual reaction, iris intensely engorged and contracted to small pupil, hypopyon 2 mm, pupillary area fairly clear, vision = 10/200 *Pneumococcus* cultivated Ulcer incised and cauterized 2,000 units usual local treatment June 4th no pain, hypopyon reduced, less re-

action June 5th, 2,000 units injected (temp 100), hypopyon only a line June 6th, no hypopyon, ulcer healing June 8th, eye quiet Discharged June 9th

Remarks Response to treatment, 4,000 units injected, in hospital 7 days

(VI) Mrs B H, 65 yrs Ulcus Serpens Admitted Aug 25, 1919 Injury to O D one week before Physically under par, nephritis, greatly debilitated Deep ulcer,  $3 \times 3$  mm at nasal side of cornea, active undermined margin toward centie of cornea, marked œdema of conj, intense iritic reaction, no hypopyon, vision = shadows No organism cultivated Ulcer incised and cauterized, 2,000 units, usual local treatment Each day for four days, 1,000 units injected There was no temperature response whatever Aug 29th, in spite of treatment, hypopyon 2 mm appeared While ulceration did not remain active, it progressed gradually across cornea by a sloughing or degenerative process, superficially and without perforation, as a rodent ulcer would behave, hypopyon remained about 2 mm, being reduced from time to time, but with no tendency to disappear Wassermann reaction was negative Healing began nasalward when the process had apparently spent itself at 3 mm from temporal limbus, entirely covering the pupillary area Discharged Oct 12, 1919 Leucoma corneæ remained, and subsequent iridectomy gave a temporal field

Remarks No response to treatment, even in the active or degenerative stage of this process, 6,000 units injected, in hospital  $1\frac{1}{2}$  months

(VII) R T, 54 yrs Hypopyon Keratitis Admitted Nov 7, 1919 Injury to O D two weeks before Large deep central ulcer of cornea ( $3 \times 2$  mm in size) with undermining at its upper margin and with marked infiltration about it, hypopyon 3 mm deep, iris partly dilated from atropine, pupillary space cloudy in its lower half, vision = fingers peripherally *Pneumococcus* cultivated On admission ulcer incised and cauterized, 2,000 units injected (temp 100.8) Nov 10th, 48 hours afterwards hypopyon disappeared completely, pain relieved, cornea clearing Nov 11th, 2,000 units injected (temp 111) Nov 12th, hypopyon 1 mm returned Nov 13th, 2,000 units injected (temp 99.5) Nov 14th, hypopyon increased to 2 mm Nov 15th, 2,000 units (temp 100) Nov 16th, hypopyon reduced to a line, reaction less Nov 17th, 2,000 units (temp 99.8) Nov 18th, hypopyon disappeared Discharged Nov 19th Leucoma corneæ remained

Remarks Evidence of response to treatment, both local and systemic, 10,000 units injected, in hospital 12 days

(VIII) S D, 46 yrs Pan-Ophthalmitis Admitted Apr 9, 1919 Penetration of O D by piece of steel three days before Violent lid and conj reaction, chemosis of conj covered part of cornea, purulent exudate in ant chamber, pain

excruciating. On admission constant ice compresses and 2,000 units injected (temp 100). Following dry pain relieved, reaction reduced. Apr 10th, 1,000 units (temp 99.5), ant chamber clearing. Apr 11th, ant segment clearing, but ant chamber very shallow. Apr 12th intense pain, tension ++, 2,000 units (temp 101). Ant phacocentesis but no effect. Evisceration Apr 16th.

Remarks. Relief of symptoms, a clearing of anterior segment indicative of serum effect.

(IX) A W, 19 yrs. Steel in Globe (infection). Admitted Apr 11th, 1919. Chip of steel penetrated O D one week before. Hypopyon hereto iritis hypopyon 2 mm deep. Apr 12th, after localization of steel in vitreous chamber by Dr Geo Dixon, steel was removed by magnet extraction via the anterior route without iridectomy and without apparent lens disturbance, 2,000 units of serum injected and 1,000 units every other day for five injections. Hypopyon disappeared forty-eight hours after operation and serum injection. Hypopyon 1 mm returned on Apr 27th, but disappeared in 24 hours after an injection. No pain was experienced after operation, and the anterior segment of the eye remained clear and transparent although it was evident that a purulent process was active in the vitreous chamber. The eye was enucleated May 17, 1919.

Remarks. Effect of serum was apparent in relief of symptoms, and clearing of anterior segment.

(X) B S, 48 yrs. Pan-Ophthalmitis. Admitted May 7, 1919. Day following admission, simple extraction performed, result satisfactory till May 13th, when infection of ant chamber suddenly appeared. May 14th, hypopyon 2 mm. 2,000 units injected (temp 100). May 15th decided improvement, hypopyon 1 mm, ant chamber clearing. Pain relieved. May 16th, hypopyon increased, 2,000 units (temp 100.1). Ant chamber opened and irrigated, contents on examination and cultivation showed pus cells but no bacteria. Ant segment of the eye cleared and remained so but the globe became very soft, and was eventually enucleated.

Remarks. Improvement in symptoms and clearing of anterior segment again indicative of serum effect.

(XI) F M, 45 yrs. Traumatic Cataract (infection). Admitted May 21, 1919. History of injury to O D. Traumatic cataract, iritis, hypopyon 1½ mm, wound at upper nasal limbus, tension soft. On admission 2,000 units injected. No effect. May 28th, Extraction of cataract. Reaction following operation was violent. May 29th, 2,000 units injected. Early intensive local treatment followed. Eye quieted rapidly. Dense secondary membrane remained. Tension normal. Discharged June 7, 1919.

Remarks. A element of serum effect was apparent in this case.

(XII) K R, 4 yrs. Kerato-Iritis with Hypopyon. Admitted, Mar 31, 1919. History of linear extraction Mar 4th, and eye quieted in usual manner and discharged Mar 18th. On admission intense conj and iritic reaction. Hypopyon 3 mm. Iris contracted to small pupil, 1,000 units injected and repeated every day for three days, usual local treatment. In twenty-four hrs hypopyon had markedly diminished, and in forty-eight hours more it had disappeared. Apr 4th no hypopyon but secondary glaucoma appeared. Imminent. Atropine discontinued. Tension +. Apr 5th, tension reduced, aqueous clear. Pupil 1½ mm. Filled with plastic exudate. Apr 7th, exudate absorbing. Apr 11th iridectomy in tense reaction followed. Cornea and aqueous remained clear. Same till May 7th enucleation.

Remarks. Serum effect was apparent in the clearing of the interior segment.

(XIII) G D, 35 yrs. Penetrating Wound (infection). Admitted Feb 25, 1920. O D injured by piece of steel previous day. Penetrating wound through iris and lens. X-ray revealed no foreign body. In twenty-four hours an acute infection was evident, purulent exudate in ant chamber and vitreous chamber, the iris bound to lens capsule by purulent exudate, hypopyon 2 mm. Intense pain. Constant hot compresses, atropin, 2,000 units of serum injected. In forty-eight hours pain relieved, hypopyon reduced, acute symptoms subsiding. Feb 28 and 29 2,000 units. Mar 1st, hypopyon increased to 3 mm, but reaction same. Mar 2d, 2,000 units, less reaction, hypopyon reduced. Mar 5th, hypopyon disappeared. Mar 10th, 14th, 18th and 27th, 2,000 units injected. My Mar 11th (only two weeks after admission) the eye was quieting. The cornea clear and transparent, the aqueous clear, no hypopyon, the pupillary exudate almost entirely absorbed and the vitreous chamber by indirect illumination can be seen to contain in its lower third a whitish exudate, apparently a quieting chronic infection. Tension is about normal.

Remarks. The final outcome is not in doubt, but the effect of the serum is apparent in the clearing of all exudate from the interior segment in a comparatively short period of time, and in the relief of pain. 16,000 units injected to date.

(XIV) F C 18 mos. Penetration with Infection. Admitted Mar 15, 1919. Left eye penetrated by point of a pen two days before. Wound of cornea infected, whole cornea infiltrated. Hypopyon 3 mm, iris could not be seen. Violent conj and lid reaction. On admission 1,000 units injected, local treatment. Mar 16th ant chamber filled with purulent exudate. Reaction continued. Mar 17th, 1,000 units. Mar 18th whole cornea infected, and sloughing. Evisceration Mar 19th.

Remarks. Evident high virulence of the organism unaffected by serum and local treatment.

came necessary to make a careful research and complete study of all of the literature on pituitrin, particularly the most recent writings on the subject. Pamphlets, leaflets, reprints and the latest articles were examined and studied. Conferences were had with the defendant, hypothetical questions of highly technical character were prepared and submitted to physicians who were to testify as experts in the case, and witnesses as to the facts were examined. In another case brought for the death of a patient it became necessary to study the authorities on a rare and until recently, but little understood disease, to prepare hypothetical questions to submit to experts on that disease, to make technical tests of the mechanical apparatus used in connection with the treatment of the disease and to examine witnesses for the defendant.

It will thus be seen that the work that counsel has been engaged in for the Society and its members in the last three months has received serious and careful attention, and that it is not simply the services involving certain hours or days in the trial and disposition of the cases in Court that constitute the major part of his service to the Society.

Important as this defense work is to the members of the Society and, particularly, to the individuals affected, counsel should be available to render other service to the Society in connection with its analysis of legislative bills, preparation of briefs thereon, presentation of arguments before the Legislature, the various committees thereof or the Executive in relation thereto.

The Society should likewise receive the benefit and advice from the counsel of the Society in connection with many of the matters that are under consideration by the committees of the Society. This broader field of work on the law side of the Society's activities should engage the serious consideration of the counsel and the defense work so organized throughout the State under the direction of counsel that the other activities of counsel's office in lines that are beneficial to the profession as a whole and consequently to the community at large should be undertaken.

From time to time counsel or his representative in appearing in different parts of the State on cases for the Society or its members could discuss many important legal and legislative topics of great interest and concern to the profession before the County Societies in different communities and bring the profession in these communities to a clearer understanding of the work that was being done in their behalf by the State Society and probably create a broader sympathy and support for the Society's activities and projects. To carry out a program of this character would probably require an assistant to the counsel involving in this department of its work a materially increased expenditure by the So-

ciety. It is recommended by counsel that this suggestion be considered and that if the financial means of the Society are sufficient that such a plan be adopted.

Many of the existing statutes governing the practice of medicine restricting and regulating the profession, and numerous bills of similar character that have within the last few years been introduced have emanated from sources without the profession and hostile to its interests.

Upon salutary medical legislation there is often grafted vexatious and obnoxious features that interfere with the legitimate practice of the doctor. It is the judgment of counsel that extravagant or threatening protest against this invasion of the doctor's rights, avails little, nor is the voting strength of the profession sufficient if united, to make any serious political impression. The profession needs an organization of its activities that looks beyond the mere defeat this year of the proposed offensive bills to a program that is not only defensive but constructive. Before an enlightened public sentiment can be created among the people in this direction, a unity of purpose in the profession itself must be created.

The stimulation of interest and support among the public for the ideals, aims and problems of the medical profession should be propagated by the profession. In other words it is the task of the profession itself to develop a constructive program for its own protection and for its future development.

The time when the medicine man was a mystic who dealt with occult and mysterious forces which only he could understand, has passed. The medicine man of today must needs take the public more into his confidence and eliminate much of the mystery in his dealing with the people.

Frank discussion of medical truths has done much to eliminate the quack and the patent medicine man, which results have flowed from an education of the public. The public can equally well be educated to a realization of the necessity of saving the medical profession from control by commercial interests, under contract practice and from falling a prey to the socialistic schemes of medicine that throttle personal initiative and ambition. It is the judgment of counsel that the profession must have a program other than one of mere opposition to meet the agitation for state medicine, compulsory health insurance, medical aid to injured workmen, narcotic drug addiction and the like, and that that program must be one that fearlessly and frankly meets the need of the public. In this endeavor, the medical profession should lead and not follow lay opinion, otherwise, the insistence of the public for constructive medical legislation will result in medical laws that do more to hamper than to help the practice of medicine.

## AMERICA'S CHILDREN

Most of us take it for granted that American children go to school receive a fair education, and, taking it by and large are so much more fortunate than the children of any other nation that we need not worry about them. But how true is our assumption? At least one fifth of all American children between ten and fifteen are out of school earning their own living. In one industrial center in Massachusetts a State that stands high on our educational roll only one child in ten finishes high school while sixty six out of every hundred leave school for work the moment the compulsory school law releases them. This is true in a greater degree in other States, some of which still have no adequate schooling law require only a knowledge of English of children leaving school for work and have a school term of only eighty days. The result is that almost one-quarter of our population is illiterate.

In fourteen States this year it is reported that child labor has increased, more children leaving school for work than in 1919. Many of them are employed in industries not regulated by the Federal tax on child labor they may be employed nine, ten or eleven hours a day they may be worked on night shifts they may even work at trades known to be dangerous—and the child in industry is just three times as likely to suffer accident as the adult. Massachusetts again, is more careful of her children than many States yet in Massachusetts last year there were 1691 industrial accidents to children under sixteen ten of which were fatal and sixty two of which resulted in permanent partial disability to the child.

Is all this a square deal for American children?

It is to consider such facts to bring the child welfare situation home to all of us that the National Child Labor Committee appoints the fourth Sunday in January each year as Child Labor Day. In 1921 it falls on January 23d. It is observed not only in Sunday schools and churches but on January 22d in synagogues and on January 24th in schools colleges clubs and other organizations. Pamphlets and posters are distributed by the National Child Labor Committee for use by those interested in observing the day and anyone who wishes such material should write directly to the National Child Labor Committee 105 East 22nd Street New York City.

It happens that Child Labor Day comes this year at the end of National Thrift Week and so the Committee points out that the conservation of children may well be considered as an item in the larger national thrift. Every child without an education today says Owen R. Lovejoy secretary of the National Child Labor Committee means an illiterate citizen tomorrow, every child who is overworked today means a dulled unhealthy citizen tomorrow, and every child who enters a low wage, blind alley occupation today without means of advancing himself means a poverty stricken inefficient citizen tomorrow very possibly a charge upon the nation. What kind of citizens do we want and what kind are we making?

## CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

The first annual meeting of the New York Section of the American College of Surgeons was held in Buffalo on December 2d and 3d 1920. An excellent program comprising clinics on both mornings at the various hospitals and evening sessions with papers and discussions at the Lafayette Hotel filled the time most satisfactorily.

On the evening of December 2d a meeting to which the public was invited was held at the Hutchinson High School Auditorium. Addresses were made by Mr. George C. Diehl the President of the Rotary Club of

Buffalo, by Dr. Franklin H. Martin Secretary General of the American College of Surgeons, Dr. John B. Denver, Professor of Surgery, University of Pennsylvania, Mr. John D. Bowman Director of the College and Mr. Walter P. Cooke of Buffalo.

All the speakers stressed the importance of the relationship between the public and the profession and the desirability of furnishing some satisfactory means for the layman to select a competent surgeon in case of need. The importance of hospital standardization was also carefully considered and the support by the public of recommended institutions was asked for.

About a thousand people were present at this meeting and the addresses were received with a good deal of enthusiasm. The value of thus taking the public into the confidence of the surgeons and the importance of seeking their co-operation in the improvement of hospitals and of surgical work was very evident from the result of this public meeting.

## BROOKLYN CARDIOLOGICAL SOCIETY

This society held its first meeting at the office of the President 102 Fort Green Place, Brooklyn N. Y. on November 29th last. The officers are: Dr. William J. Cruikshank President, Dr. Glenworth R. Butler Vice-President, Dr. Frank Bethel Cross Treasurer, Dr. William W. Laing Secretary, 195 Greene Avenue Brooklyn N. Y.

## MATERNITY BENEFITS

The Massachusetts Civic Alliance a non partisan organization solely for the public good views with misgivings the various socialistic movements. It feels that whatever may be brought under Government ownership and control the American home should never become socialized. Bills for Federal and State Maternity aid in child bearing have been recommended by various societies and public officials.

U. S. Senate Bill 3259 provides for Federal aid to the States in providing public money from the National treasury and a method of co-operation between the United States and the States in supplying medical, hospital nursing and obstetrical care at child bearing. As there are two and one half million births annually in the United States, the ultimate cost to tax payers would be enormous.

### MATERNITY BENEFITS NOT A PANACEA

Bills for Maternity Benefits come from an erroneous idea in the minds of some people based upon questionable statistics that the health of the American nation has gone far below the universal standard and that prenatal and postnatal care is the sole panacea for all our evils.

We are tired of social reforms which are constantly being foisted upon us to cure us of what ails us when nothing at all out of the ordinary is the matter.

If the proponents are really in earnest in their endeavors to better the human race the expectant mother and offspring we would suggest that they devote the same amount of energy in advocating more religion better morals better habits better protection by right dressing better living and working conditions less dancing less theatre, more fresh air, less burning of the midnight oil and many other things too numerous to mention. The results obtained would throw into insignificance the prenatal and postnatal proposition.

### STATE CONTROL OF MATERNITY BENEFITS UNNECESSARY

We oppose these bills because they are unnecessary. We have at present laws upon our statute books and what is needed is to work out these laws to the fullest extent. Then if they are not sufficient amend them or make new laws.

The State Department of Health has never been given more than advisory power. We have no objection to have that same power continued. The Force of Law has always been invested in the local departments of health. That is Home Rule, and we trust it shall prevail.

The very things sought are now in a measure being accomplished. Physicians, under the law, report all births as they occur. The local board of health then sends a visiting nurse or the district nurse to follow up the case and help the physician to give postnatal care. This costs the State not one penny. It would be an easy matter to extend the work and make it even more effective under the same mode of procedure.

Expectant mothers engage their physicians several months in advance. The attending physicians are thereby in a position to give advice and prenatal care. Here again it would be an easy matter for the physician, in conjunction with the local board of health and the visiting nurse, to extend the work. The advisory function of the State Department of Health would here find a very useful and broad field of endeavor. Thus we oppose these bills because they are unnecessary, and the same results can be obtained without cost to the commonwealth.

These extracts are from the protest of the Worcester North District Medical Society which was presented to committees of the Massachusetts Legislature of 1920 by A. H. Quessy, M.D.

## HEALTH CENTRES AND ANNUAL RE-REGISTRATION BILLS

At a regular meeting of the Medical Society of Bay Ridge, held on December 14, 1920, the following resolutions were adopted unanimously:

*First* Resolved, that we believe the Sage or Health Centre bill should be opposed on the following grounds:

1 That it is unnecessary for the reason that the situation it is designed to correct, if it exists at all, can not be remedied by legislation.

2 That it creates a State-wide political machine in which politics and not health might often be the primary consideration.

3 That the practical results obtainable would be disproportionately small compared to the expense which would be large, inflating an already plethoric State budget and increasing county taxation.

4 That it is essentially paternalistic.

5 That it is visionary, idealistic and impractical. We question whether it would be possible to man sixty laboratories in this State with adequately trained pathologists, bacteriologists, technicians, etc., especially when the meagre salaries paid by the State are kept in mind.

6 That it concentrates too great power in one individual, the State Commissioner of Health.

7 That, if existing health laws are enforced, clearing the State of the cults of healing, as well as of the irregular and unlicensed practitioners of one kind and another, so that the medical profession of the State could get a fair deal, there would be no necessity for legislation such as this. Closer co-operation with the State and County Societies would do much to bring this about.

8 That it means State medicine—a proposition fraught with more serious consequences to the public than even that afforded by Compulsory Health Insurance.

Your Committee feels that prudent extension of the activities of the State Health Department through local health officers, providing adequate laboratory and di-

agnostic aid, but with no incursion into the active practice of medicine is all that the situation calls for. We are cognizant of and sympathetic with the country practitioner and his problems as well as with those communities where there are no physicians. The Sage, or any other similar bill will not put doctors in hamlets when the whole trend of population is to the cities, nor will any legislative enactment create with a magic wand skilled specialists, surgeons, technicians, etc., in sufficient numbers properly and adequately to staff the institutions called for in this act. Such bills as this are a species of sophistry and can not be condemned too strongly.

Your Committee further suggests that the State and all the municipalities in it should take up the question of further aiding our hospitals and clinics, which are in great need of adequate appliances and equipment to bring them up to date, it being a well-known fact that modernizing and enlarging these institutions will go a great way towards meeting the very provisions sought to be effected, by this proposed legislation. State and municipal aid to our hospitals and clinics has been very meagre and most of them are suffering and have been suffering for years for the want of adequate equipment, and the money spent in this direction would amount to very little compared with the millions that would have to be spent to make effective that which it is proposed to do under the Health Centre or Sage Bill.

Resolved that, Whereas it appears in the October issue of the NEW YORK STATE JOURNAL OF MEDICINE, on page 337, bottom of first column, that the Council of the State Society, on motion duly made, seconded and carried, directed the Chairman of the Committee on Legislation of the State Society to introduce the Medical Registration Bill at the next session of the legislature and whereas, the Medical Society of the County of Kings has gone on record as opposing the bill.

Therefore, be it resolved that the Medical Society of Bay Ridge requests the Council to reconsider that motion and that a copy of this resolution be sent to the Secretary of the State Society, together with the following memorandum as to our reasons for opposing this measure, *viz*:

1 It nullifies the license already granted us to practice medicine in perpetuity and substitutes therefor a year to year license.

2 The present registration in the County Clerk's office is sufficient.

3 The State Society publishes annually with great care a list of regularly licensed practitioners in this State.

4 It is class legislation in that the profession is to be charged a fee to create a fund for purging the State of illegal practitioners. That is properly a function of the State.

5 It is unnecessary, as the police power already exists for the control of those practitioners not duly licensed. More law is not needed but better enforcement of existing law is.

6 It is demeaning to a great and noble profession in its requirements as to filing of photographs. Why not finger prints?

7 It will cause expense and inconvenience with no proportionate return to the public or the profession.

ROLLIN HILLS, M.D.,

Secretary

The Council of the Medical Society of the State of New York passed the annual re-registration resolution as requested by the House of Delegates, but rescinded it at the December meeting.—[EDITOR]

## RESOLUTIONS ADOPTED BY THE HOUSE OF DELEGATES OF THE STATE MEDICAL SOCIETY OF WIS- CONSIN, SEPTEMBER 8, 1920

*Whereas*, in our forty-eight States, there are as many separate examining boards and

*Whereas* licensed physicians in one State may not always practice in other commonwealths without vexatious procedures and

*Whereas*, the practice of medicine is uniform throughout the length and breadth of the land,

*Therefore Be It Resolved* that it is the opinion of the House of Delegates of the State Medical Society of Wisconsin that the right to practise medicine in one State should be extended to include the right to practise medicine in any part of the United States

*Whereas* the practice of indiscriminate prescribing of liquor by some members of the medical profession on the mere request thereof and without regard to the need of the individual is bringing our profession into disrepute and

*Whereas*, the State Medical Society of Wisconsin as a body desires to affirm its wish that all its members shall render strict obedience to the laws whatsoever they may be

*Therefore Be It Resolved* that the State Medical Society of Wisconsin as a body condemns all and every effort on the part of the medical profession to take unfair advantages of the privileges to the physician under the law by the indiscriminate granting of prescriptions for the purchase of alcoholic stimulants

*Be It Further Resolved* that copies of the above resolutions be sent the proper officers of all State Medical Associations for such action as they might see fit to take

## Deaths

BARTLETT WILLIAM ALLEN New York City College of Physicians and Surgeons New York 1881 Fellow American Medical Association member State Society Died January 5 1921

CLIMENKO HYMAN New York City Long Island College Hospital 1904 Fellow American Medical Association member State Society New York Academy of Medicine New York Neurological Society Chief Neurological Clinician Mt Sinai Hospital Died December 16 1920

HAPPEL WILLIAM H Albany Albany Medical College 1890, member State Society Died December 10 1920

HELLENSTEIN HERMAN New York City Buffalo Medical College 1890 Fellow American Medical Association member State Society Died December 20 1920

KNIPL GEORGE New York City College of Physicians and Surgeons New York 1885 Fellow American Medical Association, member State Society New York Academy of Medicine Died January 5 1921

LUCE DANIEL Oneonta New York Homeopathic 1889, member State Society Died November 16 1920

MESSENGER JOSEPH ELLIS New York City, Bellevue Medical College 1879 member State Society Died January 5 1921

PADIERA GEORGE WENZESLAV Rochester, University of Breslau Germany 1864, Fellow American Medical Association member State Society Died December 2 1920

SCHUYLER WILLIAM J, Utica New York University 1885, member State Society Died November 20 1920

SWIFT, WILLIAM J, New York City College of Physicians and Surgeons New York 1878, member State Society Died December 20 1920

WOEHNERT ALBERT E Buffalo University of Buffalo 1893, Fellow American Medical Association member State Society, Buffalo Academy of Medicine Attending Physician City of Erie County Hospitals Died December 10 1920

## Meeting of the Council

The meeting of the Council of the Medical Society of the State of New York was held in the State Society rooms 17 West 43rd Street on Tuesday afternoon December 7, 1920 Dr J Richard Kevin President, Dr Edward Livingston Hunt, Secretary

The meeting was called to order at 2 30 by the President, and on roll call the following answered to their names Drs J Richard Kevin Grant C Madill E Eliot Harris Dwight H Murray W Meddaugh Dunning Edward Livingston Hunt, Joseph B Hulett Luther Emerick T Avery Rogers Leon M Kysor, Owen E Jones Harry R Trick, Samuel Lloyd, James F Rooney Joshua M Van Cott Frederic E Sondern and William Francis Campbell

A quorum being present the President announced the meeting open for business

Excuses were presented from Dr William H Purdy and Dr Frederick C Holden Moved that Drs Purdy and Holden be excused Seconded and carried

Moved that the minutes of the last meeting be approved as printed in the October issue of the JOURNAL Seconded and carried

Dr Lloyd, Chairman of the Committee on Scientific Work gave an outline of the scientific program for the coming meeting of the State Society and presented the names of several physicians not residents of the State with the request that the Council extend them the privilege of participating in the scientific sessions

Moved that the physicians whose names were presented be accepted and that the Chairman of the Committee on Scientific Work be granted the privilege of inviting any other physicians whom he deemed advisable Seconded and carried

Dr Rooney Chairman of the Committee on Legislation presented a short report in which he stated that among the important bills which would undoubtedly be reintroduced at the coming session of the legislature would be those on Compulsory Health Insurance Chiropractic Health Centers and Medical Reregistration

Moved that the previous action of the Council directing the Chairman of the Committee on Legislation to introduce the Medical Registration Bill at the next session be rescinded Seconded and carried

Dr Campbell Chairman of the Committee on Arrangements, stated that plans were well under way for the coming Annual Meeting of the State Society which would be held at the 23rd Regiment Armory in Brooklyn

Mr Whiteside Counsel for the State Society presented a report\* covering the work of his office since September 1st

Moved that in order that Mr Whiteside's report be brought before the profession that it be published in the JOURNAL in full, or be made the basis of an editorial Seconded and carried

The Committee to consider the question of the appointment of an Executive Secretary presented the following report

The Committee on the Question of the Executive Secretary is pleased to report that the last House of Delegates adopted the recommendation of President Madill advising the employment of an Executive Secretary. Your Committee after considering the whole question including the financial obligations involved recommend

(a) That an Executive Secretary be employed on contract to be drawn by our Counsel and signed by the President and the Executive Secretary for a period of six months at a salary not over \$3,000, and an expense account of not over \$2,000 for the period above named

(b) The duties of the Executive Secretary shall be defined by a Committee of Five composed of the President, Secretary and three other members of the Council, to be named by the President. But the detail of the work of the Executive Secretary shall be subject to the control, supervision and approval of the Secretary elected by the House of Delegates

(c) The sub-committee of the Council in defining the duties of the Executive Secretary shall not interfere with the present plan of the general office work.

Respectfully submitted,

J RICHARD KEVIN,  
E ELIOT HARRIS,  
EDWARD LIVINGSTON HUNT

Moved that the question of the appointment of an Executive Secretary be postponed until further information had been secured in regard to the cost of conducting the legal department for the coming year. Seconded and carried

Moved that a Committee of Five be appointed to consider the report of the Counsel and to report back to the Council. Seconded and carried

The President appointed Drs Frederic E Sondern, Grant C Madill, Joseph B Hulett, E Eliot Harris, and Owen E Jones

After a short recess the Council readjourned and the Committee presented the following report

The Committee is of the opinion that in view of the extra work which Mr Whiteside has started, that he should be allowed an additional compensation of \$3,000 up to the first of May

Moved that the report be accepted. Seconded and carried

The report of the Committee to Consider the appointment of an Executive Secretary was then taken up

Moved that the report of the Committee to Consider the appointment of an Executive Secretary be tabled. Motion lost

Moved that a vote be taken on the adoption of the recommendation of the Committee on the appointment of an Executive Secretary. A vote was taken and the motion was found to have been lost

The Secretary read a petition from the Queens-Nassau Medical Society requesting permission to dissolve the present society and to organize two separate societies to be known as the Medical Society of the County of Queens and the Medical Society of the County of Nassau

Moved that permission be granted the Queens-Nassau Medical Society to separate into two organizations, to be known as the Medical Society of the County of Nassau, and the Medical Society of the County of

Queens, and also to take such steps, legal or otherwise, as may be necessary, to dissolve the Queens-Nassau Medical Society and to organize the two separate County Societies as named above. Seconded and carried

Moved that the communication received from Dr Wicker be referred to the Board of Censors. Seconded and carried

A letter was read from the Medical Society of the County of Westchester, requesting that certain proposed amendments to their By-Laws be approved by the Council

Moved that the amendments be referred to the Secretary for action. Seconded and carried

The Secretary read a letter from Dr Augustus S Downing, Assistant Commissioner of Education, requesting that nominations be made for the Nurses' Advisory Council in accordance with Chapter 742, Section 254 of the Laws of 1920

Moved that nominations for members of the Advisory Committee be left to the President. Seconded and carried

The President appointed Drs William Francis Campbell, E Eliot Harris, Albert T Lytle, Luzerne Coville, Arthur W Booth and Edwin MacD Stanton

Moved that the President appoint a Committee of Three to draw up reasons why an Executive Secretary was not appointed. Seconded and carried

The President appointed Dr Frederic E Sondern, Chairman, Edward Livingston Hunt and Henry Lyle Winter

Moved that in order to facilitate the work of subsequent Councils, the President appoint a Committee of Five to draw up rules and regulations in regard to conducting the business of the Council, with the idea in mind that some of the business be considered by smaller committees of the Council appointed for this purpose. Seconded and carried

The President appointed Dr E Eliot Harris, Chairman, Frederic E Sondern, Edward Livingston Hunt, Henry Lyle Winter and Samuel Lloyd

There being no further business the meeting adjourned at 5 P M

EDWARD LIVINGSTON HUNT,  
Secretary

## The 1920 Assessment

At the last annual meeting of the Medical Society of the State of New York, a resolution was passed by the House of Delegates providing for the levy of a per capita assessment of two dollars on each member in each constituent County Society, to be collected by each County Society and by the treasurer of that society turned over to the treasurer of the State Society on or before December 31, 1920

The non-payment of this assessment is equivalent to the non-payment of annual dues and the status of membership is governed accordingly

This January issue of the JOURNAL is being sent to delinquent members, but subscriptions will lapse unless the assessment is received prior to February 1

## County Societies

## BRONX COUNTY MEDICAL SOCIETY

## SPECIAL MEETING

THURSDAY, DECEMBER 9, 1920

At a special meeting of the Society held for the purpose of discussing the proposed plan to legalize Chiropractic and revise the Workmen's Compensation Law

The following resolutions were adopted

That a Special Public Health Educational Committee be appointed to work in co operation with the present Committees on Legislation and Medical Economics to

(1) Study all matters that pertain to the economic side of our profession such as the proposed Chiropractic Bill Compulsory Health Insurance, etc ,

(2) That a fund be established either a voluntary fund or an assessment fund to carry on this work ,

(3) That an active newspaper campaign be carried on throughout the City of New York ,

(4) That the Medical Society of the State of New York be called upon to hold a public hearing at the Academy of Medicine in the near future to take up the matters under discussion at which the lay public should be invited as well as the medical profession

(5) That another Committee be appointed to visit the institutions of learning for the purpose of getting them on record

Resolved that the Bronx County Medical Society is unalterably opposed to the practice of Chiropractic in New York State

The following amendments to the Workmen's Compensation Law were recommended

(Matter in brackets to be omitted Matter in italics is new matter)

Amend Section 3, by changing sub section 7 page 22 Edition of July, 1919 to read as follows

'Injury' and 'personal injury' mean only accidental injuries arising out of and in course of employment [and] such disease or infection is may naturally and unavoidably arise therefrom [,] and such occupational diseases as are scheduled under Article 2a

Section 13 Treatment and care of injured employees

The employer shall [promptly] provide for an injured employee such medical surgical or other attendance and treatment, nurse and hospital service medicine crutches and apparatus as the nature of the injury may require during sixty days after the injury but the Commission may where the nature of the injury or the process of recovery requires a longer period of treatment require the employer to provide the same [If the employer fails to provide the same the injured employee may do so at the expense of the employer. The employee shall not be entitled to recover any amount expended by him for such treatment or service unless he shall have requested the employer to furnish the same and the employer shall have refused or neglected to do so.] *An injured employee shall have the right to choose any physician duly licensed to practice medicine in this state to attend and treat him for the injury as heretofore provided subject to the supervision of the Commission.* All fees and other charges for such treatment [and] service, medicine crutches and apparatus shall be subject to regulation by the Commission as provided in section twenty four of this chapter and shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living

Amend Section 26 by adding after the word therefrom 'Section 26 page 57 20th line, Edition July, 1919 the following

Claims for medical services and for services or treatment rendered or supplies furnished pursuant to Sec

tion thirteen of this Chapter and approved by the Commission in conformity with Section twenty four hereof shall constitute the persons owning such claim or claims a party in interest hereunder for the purpose of permitting the filing with the County Clerk of the decision of the State Industrial Commission as herein provided and such person shall to the extent of the amount of his claim as approved by the Commission be deemed to have all the rights of a judgment creditor in such claim and may enforce his rights thereto with the same effect as though the judgment stood of record in his name and for his benefit

## TOMPKINS COUNTY MEDICAL SOCIETY

## ANNUAL MEETING ITHACA N Y

TUESDAY DECEMBER 21 1920

The meeting was called to order in Cornell University, by the President Dr Tinker

The minutes of the regular November meeting and of the special meeting of November 30th were read and approved as read

The following officers were elected for 1921 President, Edward L Bull Vice-President, Marcus A Dumond Secretary, Wilber G Fish Treasurer J Wesley Judd, Censors Willets Wilson Esther E Parker Arthur D White, Walter B Holton Henry E Merriam, Delegate to State Society, Luzerne Coville

The reports of the Secretary and Treasurer were presented accepted and ordered placed on file The Secretary's report showed that 842 per cent of the practitioners residing in the County were members of the Society

The President Dr Tinker delivered his Annual Address in which he spoke of the proposed State Medical Legislation and its trend toward Socialized Medicine and of the relationship existing and proposed between the Medical profession of the County and the Board of Trustees of the City Hospital

The Scientific Session consisted of a paper on 'Anaphylaxis and Anti Anaphylaxis with demonstration of the injection of horse serum in four guinea pigs The paper was fully discussed A short talk and microscopic demonstration of The Testis, Interstitial Cells and Rejuvenescence was given by B F Kingsbury M D with the co operation of Mr R B Humphrey

## MEDICAL SOCIETY OF THE COUNTY OF MONROE

## ANNUAL MEETING ROCHESTER N Y

TUESDAY, DECEMBER 21 1920

The meeting was called to order by the President, Dr Ruggles

The minutes of the last meeting and the minutes of the Committee Minor were read and approved as read The next order of business being the election of officers The President appointed Drs Wooden and Costello as tellers

Moved and seconded that the Society invest \$1500 in Liberty notes and that the motion be referred to the Committee for action

Moved That the Medical Society of the County of Monroe recommends the appointment of Arthur MacDonald formerly of Rochester to be Director of Census and that copies of this resolution be sent to the Senator and Representatives in Congress to be presented by them to President elect Harding

The tellers reported the following officers elected for 1921 President George H Gage Vice President Charles O Boswell Secretary B J Duffy Treasurer Irving E Harris, Censors Eugene H Howard



Owen E Jones, James P Brady, Floyd S Winslow, James M Flynn, Delegates to State Society for two years, James P Brady, Floyd S Winslow, B J Duffy, Alternates, John R Booth, George A Marion, Irving E Harris, Milk Commission, Arthur M Johnson, Albert D Kaiser

The paper of the evening was entitled, "Gonorrhea in Women," and was presented by E Wood Ruggles, M D, Rochester

### THE MEDICAL SOCIETY OF THE COUNTY OF CAYUGA

ANNUAL MEETING, AUBURN, N Y,  
THURSDAY, DECEMBER 2, 1920

The meeting was called to order with an attendance of thirty-eight members

The following officers were elected for the ensuing year President, William H Coe, Vice-President, John H Witbeck, Secretary, Lillian A Treat, Treasurer, Frederick A Lewis, Delegate to State Society, Harry S Bull, Alternate, Howard I Davenport

Compulsory Health Insurance, Frederick W Sefton M D, Auburn

Howard I Davenport, M D, retiring President, addressed the Society on the subject of Co-operation

### CHENANGO COUNTY MEDICAL SOCIETY

ANNUAL MEETING, NORWICH, N Y,  
TUESDAY, DECEMBER 14, 1920

The business session was called to order at 10 30 A M, and the following officers were elected for the ensuing year President, Lee C Van Wagner, Vice-President, J Mott Crumb, Secretary-Treasurer, John H Stewart, Edwin F Gibson, M D

#### Scientific Session

President's Address, Edwin F Gibson, M D, Norwich

Group Medicine, Earl V Sweet, M D, Syracuse

Discussion, Ralph H Loomis, M D, Sidney

Some Case Problems in Obstetrics, Stuart B Blakely, M D, Binghamton

Discussion, Charles W Chapin, M D, Greene

### THE MEDICAL SOCIETY OF THE COUNTY OF ROCKLAND

ANNUAL MEETING, NEW CITY, DECEMBER 2, 1920

The annual meeting and banquet was held at The Elms Hotel Thirty-three members and guests were present, the largest number that has ever attended an annual meeting

An attractive and enjoyable program in the form of semi-humorous toasts lent gaiety to the occasion Dr J C Dingman, President, acted as toast-master and introduced the following speakers

"What the Physician Owes to His County Medical Society," Daniel S Dougherty, M D

"Medical Ethics," Robert R Felter, M D

"Physicians' Fees and the High Cost of Living," John H Crosby, M D

"The Physician as Guardian of the Public Health," Frank Overton, M D

"Relation of the Health Officer to Society," George A Leitner, M D

"Relation of the Physician to His Patient," Orrin S Wightman, M D

After the banquet a short business session was held and the following officers were elected for 1921 Presi-

dent, William B Gibb, Vice-President, Harry C Storrs, Secretary, Ralph O Clock, Treasurer, Dean Miltimore

The Society voted unanimously that the annual meeting and banquet be held each year at The Elms Hotel, New City

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them A selection from these volumes will be made for review, as dictated by their merits, or in the interest of our readers

CLINICAL OPHTHALMOLOGY FOR THE GENERAL PRACTITIONER By A MAITLAND RAMSAY, M D Foreword by Sir JAMES MACKENZIE, M D, FRS Oxford University Press, New York and London Price, \$16 50

A TEXT BOOK OF PHARMACOLOGY AND MEDICAL TREATMENT FOR NURSES By J M FORTESCUE-BRICKDALE, M A, M D (Oxon), M R C P (Lond), Capt R A M C (T F) Oxford University Press, New York and London Price, \$10 00

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# NEW YORK STATE JOURNAL *of* MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL. 21, No 2

NEW YORK N Y

FEBRUARY, 1921

## THE ROLE OF THE COLON BACILLUS IN INFECTIONS OF THE KIDNEY

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ANN ARBOR MICH

Of all the cases in which the kidney is demonstrated to be the seat of infection the colon bacillus is found to be the chief infectious organism or the only organism in a large proportion very large if one excludes tuberculosis. Moreover, the number and the proportion do not show a rapid tendency to decrease, and on the whole the colon bacillus has been at the bottom of the most resistant problems which the urologist has had to face. We cannot 'point with pride' to our successes here, though we may well 'view with alarm' our striking inability to stamp out this infection once it has become firmly rooted.

Much the most common lesion produced by the colon bacillus in the kidney, and perhaps the only really important one, is the so called pyelitis, which is always in fact a pyelonephritis though the element of kidney involvement is often early and transient until in the later stages true ascending infection from the pelvis to the kidney substance by way of the lymphatics of the kidney tends more and more to wreck the kidney function by destruction of the tubules.

Pyelonephritis affects both sexes and all ages, but has a striking predilection for the female, and particularly at certain periods of life. In order to approach the problem more intelligently it will perhaps be convenient to divide pyelonephritis into two groups, the primary and secondary. The primary may be defined as those which occur with no clearly demonstrable cause within the urinary tract, the secondary as those which are apparently dependent to some extent upon obstruction to the outflow of urine.

### SECONDARY PYELONEPHRITIS

Let us consider the secondary type first, since it in fact forms the less difficult and therefore less serious problem. It commonly occurs in cases of urinary obstruction due to changes in the prostate and stricture of the urethra, sometimes with primary stone in the bladder, more rarely with stone in the kidney or ureter. In

defining this condition I have thought it best to use the word apparently in connection with the relation between obstruction and infection, because clearly obstruction is not the only factor. It is notorious that men with obstructing prostates or stricture of the urethra of a sufficient grade to cause moderate amounts of residual urine may remain uninfected for years, whereas others take the earliest opportunity of acquiring a pyelonephritis which resists treatment even after the obstruction is removed. It is further notorious that after so called reflex retention of urine associated with surgical operations not involving the urinary tract, some patients readily acquire a pyelonephritis, generally mis-called cystitis, while others may be catheterized with no resulting complication. The common factor in those who thus acquire a renal infection appears to be the prepared soil, that is to say, congestion of the whole urinary tract, coupled with low resistance to the colon bacillus. That mere catheterization or instrumentation of the bladder, even though carelessly done and with the presumptive introduction of bacteria, is not sufficient to cause such an infection is generally admitted and need not be discussed at length. One may catheterize with impunity the old man with an enlarged prostate if bladder compensation be good and he has no residual urine, whereas the catheterization of a similar patient with long standing though moderate residual urine may promptly result in an infection which baffles treatment. The same sequence of events follows in the catheterization of women with retention of urine following confinement or surgical operation in which the retention has been allowed to go on to over distention of the bladder. In these cases in spite of every precaution, infection not rarely follows while the same patient may be catheterized before operation or before delivery with impunity.

These are not new or original observations, and I will not detain you in their consideration, except to point out certain of their relations to surgery which seem to me to be important. Perhaps the greatest single advance in our ability to bring patients successfully through operations for the removal of an enlarged prostate has been due to our recognition of the certainty with which infection and pyelonephritis, with consequent increased depression of kidney function,

followed upon the attempt to remove the obstruction without preliminary drainage. We have somewhat mystically referred to the preliminary drainage of these patients, as if the drainage in and of itself was the key to the situation, whereas one of its most important functions is the orderly institution of a widespread colon bacillus infection of the urinary tract, with the resulting immunity which such an infection confers which guards us against its recurrence when the prostate is actually removed. It would, perhaps, be more strictly accurate, though unwise, to refer to the preliminary drainage of these patients as the preliminary infection or vaccination intended to give an immunity which is essential to success.

In another group of these secondary renal infections it appears to me that we have not quite faced our facts. The so-called "catheter cystitis" which still not so rarely follows the use of a catheter in reflex retention following gynecological operations should with the knowledge which we can confidently assert to be ours, have become a surgical curiosity. It is quite clearly dependent upon the production in these women of the "prepared soil," and this again is clearly dependent upon allowing them to go on to the production of a sufficient degree of over-distention of the bladder to be dangerous to their ability to resist infection. Too much it has been our custom to trust that retention would not occur, and to postpone the evil moment when the catheter must be passed, as if we believed that it was the catheter that caused the damage. If it were clearly appreciated that it was not the catheter but the physician, though he may be miles away, who is responsible for this infection, they would occur with much less frequency. So long as we insist upon catheterizing these patients by the clock in the utter disregard of the extent of which their bladders may have become distended, just so long will colon bacillus infections of the urinary tract from this cause continue a reproach to surgery. Extended trial has convinced me that all of these patients should be regarded as likely to have retention. They should be given sufficient doses of hexamethylenamin so that it will be present in the urine after operation, and its readministration should be begun at the earliest practicable moment. Then, and more importantly, their bladders should never be allowed to become distended beyond comfortable capacity, which may be roughly put at ten to twelve ounces. It is far better that patients should be catheterized and found to have only six or eight ounces in the bladder than that their bladders should become stretched even to a moderate degree. We should give up entirely the attempt to set the time at which catheterization should be done if the bladder has not been spontaneously emptied except in relation to the amount of liquids which the given

patient has been able to take. Thus, the patient who following operation has been greatly nauseated, and has taken little or no liquids by mouth during the subsequent twelve hours need not be expected to secrete quantities of urine, and will not therefore require catheterization as early as that patient whose nausea has been slight, and who has taken liquids freely after the first few hours. Instead of being afraid to catheterize these patients, and therefore postponing it, we should be willing to catheterize at the earliest moment when the bladder may be found to contain ten or twelve ounces. If this routine be carried out mis-called catheter cystitis will become a rarity.

But after all is said and done, these cases of colon bacillus infection of the kidney secondary to retention, though numerically common, are relatively unimportant, because we are familiar with the causes which underlie them, and when this knowledge has become universal their avoidance or cure may be confidently expected.

#### PRIMARY RENAL INFECTION

It should be understood at the outset that this term primary is used only in a provisional way intended to designate a group of cases the origin of which is obscure, and in which we cannot confidently assert that the prime difficulty necessary to their occurrence lies within the urinary tract. It is a large group of cases, and as above stated includes both sexes and all ages.

A large and serious group includes those cases of so-called pyelitis associated with or at least occurring during pregnancy. It may, perhaps, be arguable that these ought to be placed in the secondary rather than the primary group, and I am not clear upon this point. It is fairly well established that the kidney function during pregnancy is below the normal, and that from a variety of causes the kidney is overworked, but these causes lie wholly outside of the urinary tract. Of recent years there has been growing appreciation of the fact that there is definite pressure upon the ureters produced by the growing uterus, and it is generally believed that this pressure is more likely to affect the right ureter than the left. There is considerable reason to believe that pyelitis occurring during pregnancy is more common in the right kidney than in the left, and it seems reasonable to regard these two observations as being cause and effect. Our knowledge, however, is not sufficient to enable us to say that dilatation of the ureter exists in all or even most of the cases occurring during pregnancy, and the data at hand do not enable us to say in what proportion the ureter is pressed upon to its disadvantage, and yet no infection takes place. We can hardly assort the varying factors in this particular problem until we know by large and accurate observations how frequently one or both ureters are importantly ob-

structed and perhaps even dilated, during pregnancy, and what proportion of these patients do in fact acquire a pyelonephritis. There is, of course, still another factor existing during pregnancy, and that is the congestion and mechanical handicap of the bladder.

Some recent observations carried out during the past summer have suggested to me that colon bacilli are excreted by the kidney during pregnancy in a proportion of cases possibly large. In a series altogether too small to warrant conclusions they were found constantly in about twenty-five per cent, and I believe that this work might well be carried further, since it is at least arguable that intestinal conditions commonly existing during pregnancy are likely to result in bacillemia, and consequent bacilluria, which may still further facilitate the occurrence of infection. Clearly we have here many of the elements of a "prepared soil," more or less depressed kidney function, a more or less congested or even obstructed ureter and a congested and annoyed bladder. If to these should be added a bacilluria as a common occurrence, pyelonephritis would be readily explainable and, what is more important, precautions might be taken to increase resistance and consequently to diminish the incidence. As already suggested this group might perhaps be more properly placed in the category of secondary infection but is not so placed because we are still not sufficiently sure of the conditions above suggested.

If, however, we eliminate the pyelonephritis of pregnancy there still remains a large group comprehending men, women and children. In my own experience I have been struck by the frequency with which the so-called spontaneous pyelonephritis of men not associated with urinary obstruction has been associated with disease of the large intestine often with so called recurrent colitis, sometimes with mucous colitis. If we are searching for causes which might result in bacillemia and bacilluria they are certainly here present, and here, I believe, a definite causative relation in some cases.

Again in adult life and particularly in women, constipation and varying degrees of visceral ptosis are common and may well result in throwing colon bacilli into the circulation more commonly than we believe. It will I think well repay study in order to determine how frequently palpable abnormality of function of the large intestine is associated with bacillemia and bacilluria.

But even though this prove a fruitful field for research it will not help us to explain the large group of pyelonephritis occurring in young female children. I am quite aware that I am here treading upon debatable ground. It has been the time honored custom to regard this infection as ascending and dependent upon anatomical con-

formation such as the short urethra and the proximity of sources of colon bacilli in abundance. I will not take your time to discuss this question further than to point out that if these infections were due to the introduction of colon bacilli into the bladder via the urethra it is strange that they are not commoner and that no satisfying reason has been adduced to show why all female children do not have colon bacilli in their bladders. Furthermore it may be confidentially asserted that the mere introduction of colon bacilli into the bladders of these children will not produce infection. All the experimental and clinical evidence is against it and we shall never solve the problem of pyelonephritis in children as long as we continue to regard it as due to accidental contamination of the bladder with ascension from that point.

On the other hand it is this group of cases for which the least probability of bacillemia and bacilluria can be asserted. Even though it be quite arguable that infections in adults depend upon some abnormal condition of the large intestine these conditions can hardly be assumed to exist in children and if they did it would be difficult to account in this way for the notorious immunity of boys as compared with their little sisters. True colon bacillus pyelonephritis is as rare in boys as it is common in girls.

One of our gravest difficulties is that we have no means of testing the immunity. The clumping reactions of the blood, the outgrowth of the Widal reaction will not help us here and it cannot be too often repeated that these reactions are an index of infection and not of immunity. It may well be that the colon bacillus infects the kidney only of those people showing abnormally little resistance but of this we have no proof and at the moment no test. Our researches in this field will be immeasurably assisted when some test of the normal resistance of a given individual to a particular organism has been satisfactorily developed.

#### TREATMENT

There is perhaps no single condition which the urologist has to face in which treatment is less certainly effective. That recovery frequently takes place is not to be denied but that it does so on account of treatment may be less confidently asserted.

Clearly formaldehyde containing drugs have an influence upon the colon bacillus in the urinary tract but as their action depends upon relatively long contact with the organism it is clear that they must be most effective in the bladder and least effective in the kidney and yet it is the kidney with which we are most vitally concerned because it is here that the infection is most likely to become chronic.

Of late years local treatment of the kidney by means of irrigation through the ureteral catheter has had much vogue but though I have given it

an extended and at times almost enthusiastic trial, it has in my hands failed to live up to its, I fear, temporary reputation. On the face of it we should not expect much from such a method. If we asked our brethren to believe that the occasional irrigation of an infected bladder with a relatively small amount of fluid was likely to have spectacular results, we should not expect to be believed. For this reason the irrigation of the renal pelvis which at best can only be carried out at relatively long intervals can hardly be expected to have any fundamental affect and it is well to remember that it cannot be done except at the price of important discomfort to the patient and perhaps some slight chance of doing him harm. For this reason I do not expect that irrigation of the renal pelvis as a method of curing pyelonephritis will take rank as an effective procedure.

We may perhaps get a clue to the methods of treatment from certain observations on the behavior of these cases when treated only with medicine. It is quite striking that the cases which have the most stormy onset, the most severe symptoms and which at times makes us wonder, whether acute pyelonephritis does in fact never kill in the absence of previous disease, are most likely to go on to complete recovery. It is further striking that the cases which are, so to speak, chronic from the start are likely to resist treatment most successfully. These observations are I believe sound though not perhaps generally accepted. From them it appears to me to follow that the severe stormy cases recover because they have been able to produce for themselves an immunity local or general which stamps out the infection in the kidney. Now our attempts to treat pyelonephritis with autogenous vaccine have not been brilliantly successful. From many observations working under widely different conditions has come the conclusion that while vaccines not infrequently benefit the symptoms they rarely if ever have been able to remove the colon bacillus from the urine. In fact so universal has been this conclusion that the use of vaccines in this condition has fallen into disrepute but I am not clear that we have pushed the use of vaccines to its logical conclusion. May it not be that the time to use vaccines is during the acute rather than the chronic stage. Clearly where the patient is forced by the disease to produce antibodies of his own in sufficient quantities, recovery results.

Two lines of investigation in this particular connection appear to me likely to be profitable, one the more thorough trying-out of vaccines during the acute stage and pushing them to such an extent that they reproduce the severe symptoms of the most acute cases and second the sensitization of the patient or perhaps of his kidney by the use of foreign protein may favorably affect chronic colon bacillus pyelonephritis. If further study should show that this in and of

itself is insufficient to the cure of the more resistant it is still arguable that we might render the patient in this way more susceptible to active treatment with autogenous vaccines which might then be pushed as has been suggested in the treatment of acute cases.

And finally in order not to be thought too much of a pessimist in regard to this common and annoying condition let me urge that further study of the frequency of bacilemia and bacilluria in the apparently well and the further study of the relation of this condition to the condition of the large intestine may well give us the clue to the more confident treatment of pyelonephritis.

## REMARKS ON THE DIAGNOSIS OF RIGHT ILIAC FOSSA PAINS AND THE END-RESULTS IN 200 CHRONIC APPENDICITIS OPERATIONS \*

By HAROLD BARCLAY, M D,  
and  
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WE have been interested in the results of chronic appendix operations both in hospital and private practice because we have seen numerous individuals who have complained of right-sided discomfort, or who have suffered, more or less, from digestive disturbances, in whom the appendix has been unsuccessfully removed in the hope of a cure of their symptoms. The following two brief histories will serve to illustrate.

An unmarried woman of 35 complained of persistent, right-sided pains, for which she underwent a right nephrorrhaphy 7 years previously. The pain returned shortly after she was convalescent from the operation. Nineteen months after, it was decided to take out the appendix. Seven weeks after resuming work, the pain again returned. She was given a rest cure, gained some 20 pounds and was free from discomfort for nearly a year, when her symptoms gradually returned. Postural training, with an arch support for her right foot, have relieved her from abnormal sensations, and she has remained well for 4 years, working hard as a clerk in a hotel. Again, a married woman with 2 children suffered from attacks of dizziness and pronounced eructations of stomach gas since the birth of her last child, 7 years previously. On examination, a surgeon found tenderness in the appendicular region. Appendectomy was advised and performed with only temporary results. Tenderness and discomfort persisted in the right side and the dizzy attacks returned. The woman had been under a great strain with

\* Read at a meeting of the Medical Society of the State of New York at New York, March 23, 1920.

a sick husband. She was decidedly under weight and suffered from constipation. Regular periods of rest, a full fattening diet and the re education of her bowels, together with the gradual improvement of her husband's condition have relieved her of all symptoms and she is now well. These examples are illustrative. They are suggestive that a little more conservatism should be exercised in advising the removal of the chronic appendix. Instead of being the first resort operation should become the last in chronic conditions.

TABLE I

200 Operations for chronic appendicitis in the Presbyterian Hospital, New York City (1916-1917)

146 Females	73%
54 Males	27%

- 1 Cures in 151 or 75.5%
- 2 Improvement (satisfactory), but not perfect cures in 22 (11 per cent)
  - 1 All but 2 had pathological appendices
  - 2 In 15 no ascertainable causes for lack of cures
  - 3 In 7—
    - Movable kidneys 2
    - Uterine (adnexal) lesions 5
- 3 Failure to cure, 27 (13.5 per cent)
  - 1 All but 1 had pathological appendices
  - 2 In 10 no ascertainable causes for lack of cures
  - 3 In 17—
    - Dilated movable caeca, 1
    - Kidney movable 1, calculi, 3
    - Uterine 6
    - Adhesions 3

#### SUMMARY OF UNCURED CASES (2 AND 3 ABOVE)

Total of 49 (24.5 per cent)

- 1 Pathological appendices in all but 3
- 2 No ascertainable causes for lack of cures, 25.51%
- 3 24.49% had—
  - Movable dilated caeca 5
  - Kidney, movable, 3, calculi 2
  - Uterine and adnexal lesions 11
  - Adhesions 3

No subsequent hernia in scar in any case

No subsequent inguinal hernia in any case

Pain before the operations the only symptom in 51% of the 200 cases with 71% of cures

Pain with stomach symptoms in 49% of the cases with 80% of cures

Diarrhoea in only 5 instances

Constipation the rule

TABLE II

58 private patients unrelieved of symptoms after appendectomies

Causes of unrelief

- 2 Gastric crises
- 43 Splanchnoptosis
- 1 Ureteral calculus
- 2 Pericolic adhesions
- 5 Duodenal ulcer
- 4 Gall bladder disease
- Infection 1
- Calculi 3
- 1 Chronic duodenal obstruction

These statistics were taken from two different sources, the first table consisting of 200 operations for chronic appendicitis upon ward patients in the Presbyterian Hospital, performed in 1916 and 1917, with the after-results of all these cases. The follow-up system of the hospital is very thorough and satisfactory, 91 per cent of the patients in 1918 being successfully followed. Of the 200 appendectomies 75.5 per cent were perfectly cured, while 11 per cent were considerably improved but could not be called completely cured. Of these 22 improved patients, no definite causes could be subsequently ascertained for lack of cures in 15. Radiographs and all other diagnostic examinations were negative. Of 7 of these patients, movable kidneys were present in 2, and uterine and adnexal lesions were diagnosed in 5. All but 2 of these improved patients had pathological appendices on microscopical examinations.

There were 27 patients, or 13.5 per cent of the whole 200, who received no benefit from the operations. All but one of these removed appendices showed pathological changes on microscopical examinations. In 10 of these 27 patients, it was impossible to discover any ascertainable causes for lack of cures, subsequent to operation by radiographic or other methods of examinations. In 17 of these 27 uncured patients, definite pathological lesions were subsequently found, dilated, movable caeca in 5, movable kidney in 1, kidney calculi in 2, uterine lesions in 6, and adhesions in 3.

A study of the 58 private patients in Table 2, taken from about 700 gastro intestinal patients, who came to us because of unrelief after previous appendectomies, is illuminating. They were operated upon by surgeons generally, not in any one hospital. They show that more thorough study before operation would have spared these patients unrelieving operations.

Thus there were 2 private patients operated upon for appendicitis whose right-sided pains were due to gastric crises, 43 were subsequently discovered to have splanchnoptosis, accounting for their pain, 1 had a ureteral calculus, 5 duodenal ulcer, 2 pericolic adhesions, 4 had gall bladder disease while 1 had chronic obstructions.

On comparing these 2 tables, it would seem that the hospital patients were more carefully worked up before operations than the private patients. There were no subsequent operations necessary among the hospital patients for stomach or duodenal ulcers or gall-bladder diseases. Colitis and enteroptotic crises in general were not operated upon. Of the uncured hospital patients all but 3 had pathological appendices, this condition, in a measure, justifying the

operations, although a normal appendix, anatomically speaking, is a great rarity. Probably the failure of cures, among those without definite ascertained causes, may be most generally attributed either to postoperative adhesions or to unrecognized degrees of enteroptosis or to pelvic lesions. We rarely see a workman complain of adhesions, but in the neurotic all these symptoms are much exaggerated.

These figures suggest that private patients with suspected chronic appendicitis generally should be better worked up before operations so as to arrive at a more correct diagnosis. Associated concomitant lesions should be treated medically before operations are undertaken so as to weigh carefully how much the appendix is at fault. At operation the gridiron incision should be given up in favor of the ample, right rectus or a transverse incision through which more thorough exploration can be made of the gall bladder, stomach, caecum, Jackson's membrane, Lane's kink and the pelvic organs. In this way ineffectual operations will be much decreased, and one cause of reproach to surgery be eliminated.

Dr. Charles L. Gibson has recently published the after-results, for 6 years, of chronic appendicitis operations in the New York Hospital. The number of unsatisfactory cases amounted to 30 per cent. He attributes the recent improvement in results to the fact that more thorough explorations are now made and to the use of 5 per cent. picric acid in the preparation of the skin before operation. Picric acid is non-irritating and produces no adhesions if the intestines come in contact with the skin covered with picric acid, contrary to iodine, which is very irritating to the peritoneum and has been responsible, undoubtedly, for many adhesions.

**Splanchnoptosis**—It is rather difficult to classify the 43 private visceroptotic cases. Radiographs were taken in 22 of the 43, of these, 14 showed prolapse of the stomach and colon with a low position of the right kidney. In 7, the colon was fairly in position, gastropnoptosis being the predominant feature. In 1 case the stomach was in good position with marked ptosis of the colon. Of the remaining 21 splanchnoptotics 3 showed chronic colitis. It would seem from this table of 58 private patients that the greatest number of mistakes in making a correct diagnosis of chronic appendicitis has occurred among the so-called visceroptotics, if one can judge from this small number of patients. Ptosis may be either congenital or acquired and right-sided pains with general digestive symptoms are common complaints among them. In going over some of our ptosed cases we have found 120 non-operated patients in whom 87 complained of varying degrees of discomfort or pains in the right side. There was no reason in any of these cases to suspect

a surgical complication. Judging from this series, one would feel that a greater degree of conservatism should be exercised before resorting to operation in splanchnoptosis. The congenital visceroptotic is, as a rule, a young woman presenting a narrow costal arch, neurasthenic, with a caecum palpably low in the pelvis and often raised by manual manipulation, and a right kidney palpable in part or entirely. They are of poor physical development, under weight, flat chested, with scaphoid abdomen, and those who have to stand on their feet are often flat-footed. They complain of pains in the back, in the head, in the pelvis and abdomen due to general debility. They are usually tender in the lower, right quadrant and we are very liable to have the same symptoms after the appendix has been removed. The only real benefit derived from the operation is the rest in bed. The acquired conditions are the results of faulty posture, wasting diseases, pregnancy, and after the removal of abdominal growths. These patients are, as a rule, greatly benefitted by an abdominal support which increases their intra-abdominal pressure and gives them much relief. There are wide varieties of opinions on two conditions frequently associated with visceroptosis, namely, Lane's kink and Jackson's membrane. Lane considers the ileal kink to be due to ptosis of the caecum with resulting crystallization of the lines of strain into peritoneal adhesions, while Coffey believes Lane's kink to be caused by chronic inflammation, not associated with ptosis. It may be pertinent to the subject to note that Keith's sphincters in the intestinal tract conform very nearly in position to Lane's kinks, and are very suggestive of a condition due to spasm. Jackson's membrane. Jackson supposed the condition, which bears his name, to be due to an infection from within the caecum. Mayo, on the other hand regards it as being caused by a late rotation of the colon, and the descent of the caecum from its hepatic position after the formation of the posterior parietal peritoneum. The caecum burrows its way into position in the right iliac fossa, investing itself with the extra layer of peritoneum, which ultimately becomes the pericaecal membrane. Lane, on the other hand, ascribes the pericaecal membrane to the same cause as the ileal kink, namely, to the development of peritoneal adhesions to resist prolapse of the caecum. It would seem, from our experience, that neither Lane's kink nor Jackson's membrane, in themselves, have great pathological significance. Among the most common cause of acquired visceroptosis is undoubtedly that due to posture. In examining the enlisted men of the army, we were much impressed with the large number of boys with faulty attitudes. They have round shoulders, protruding scapulae and prominent abdomens. The slouchy youth was much in evidence. Associated with this poor posture was

the faulty type of breathing. Normally, by filling the lungs with air, there is an outward expansion of the costal angles, and, through the vacuum thus created in the abdomen the viscera are sucked upwards. Where breathing takes place largely by means of the abdominal muscles, as shown by the very restricted excursion of the costal angles and the abdominal strain of the bad posture there is a tendency to crowd the abdominal contents downwards. We are strongly convinced that many of the adhesions found in the upper abdomen, frequently holding the intestines in abnormal positions, are the results of this faulty posture. We encountered numerous such individuals in the army and they present a very strong argument for at least two of the benefits of universal military training, namely, a proper posture, and general physical development. In general little is accomplished by operations intended to support the prolapsed viscera themselves and such operations should be thoughtfully and carefully undertaken only after non-success of all other medical means has been thoroughly demonstrated. Operations will then rarely be required for prolapse of the viscera. Setting up exercises would do more general good to womanhood than any other one thing. The lack of muscular power among the better classes is appalling and with this goes a slackening of all the supports.

**Colitis**—Where a routine examination of the stools is carried out colitis should be easily recognized by the presence of mucus either pure or blood tinged, and hard dry scybala, or unformed fermenting, putrid stools containing undigested masses of food. Proctoscopic examination will frequently reveal a hyperemic mucosa with small erosions, or in more advanced cases, actual ulcer formation.

Caecal colonic dilatations have been variously attributed to abnormal motility of the caecum to caecal ptosis, to congenital defects or to acquired atony of the caecal walls. Such theories, largely endorsed by the German school apparently have mistaken the effect for the cause. Perhaps it might seem more logical to assume that there must be something back of such abnormal motility or ptosis, to account for the caecal dilation and its frequent accompaniment of right sided pain. The works of Griskel on the sympathetic nervous system offer much illuminating thought and throw a very different view point on many of our preconceived ideas of intestinal motility. These dilated, prolapsed caeca should be plicated at the time of the appendectomy, that is one longitudinal tenia should be sutured to the other for 4 or 5 inches with continuous silk. This decreases both the vertical and transverse diameters. It is a harmless procedure and adds nothing to the gravity of the appendectomy and it may do subsequently much good.

We have had a number of these cases in which the caecum has been plicated with much benefit.

**Kidney and Ureter**—Both Braasch and Cabot found that in about 4 per cent of their renal and ureteral calculi patients the pain was referred to the right iliac region, and they comment that in this class there may be confusion with appendiceal pains. Cabot, writing upon unnecessary, previous appendectomies, notes that out of 157 cases of renal and ureteral calculi, 10 had been previously operated upon for chronic appendicitis. It is well to remember that radiographic examinations do not always reveal the presence of calculi. Cabot found that in a series of 127 cases, radiographs were negative in 6 per cent. Braasch reports that  $\frac{1}{3}$  of his cases of kidney stones had had previous laparotomies for the relief of pain. It could scarcely be possible to have every patient, who complains of symptoms of chronic appendicitis radiographed, both on account of the expense and the lack of opportunity, but it should never be neglected in those patients with typical symptoms, or those who have had previous unavailing appendectomies. Among females it is understood that no operation for chronic appendicitis should be undertaken without a thorough examination of the pelvis.

**Duodenal Ulcer**—It has been long recognized that chronic appendiceal disease can give symptoms referable to the epigastrium, simulating the now classical hunger pains of duodenal ulcer, and in certain cases it is almost physically impossible to differentiate between the two conditions, hence the necessity of thorough exploration at the time of operation. The spasmodic contractions of the ileocecal spluncer in appendiceal disease will cause spasmodic contractions of the pyloric sphincter. The two conditions chronic appendix and duodenal ulcer are found so frequently associated that it does not seem justifiable to remove the chronic appendix without exploring the pylorus, duodenum and gall bladder at the time of the appendectomy, and contrariwise, in operations on the stomach and gall bladder, the appendix should be excised as a routine even if it necessitates a second incision. For a similar reason, in all pelvic operations, the appendix should likewise be removed as a rule. Rarely are such appendices found normal. In not a single case of the 200 operations did a hernia in the scar subsequently arise. It has been alleged that there is a tendency for an inguinal hernia to develop after gridiron appendix operations. Thus, Griffiths (*The Lancet*, December 6, 1919) gives a record of 100 consecutive operations for inguinal hernia and among these there were 10 patients whose inguinal hernia had developed after gridiron incisions on the right side the greater majority without drainage. He suggests that inguinal hernia may occur in one of two ways either by



operations, although a normal appendix, anatomically speaking, is a great rarity. Probably the failure of cures, among those without definite ascertained causes, may be most generally attributed either to postoperative adhesions or to unrecognized degrees of enteroptosis or to pelvic lesions. We rarely see a workman complain of adhesions, but in the neurotic all these symptoms are much exaggerated.

These figures suggest that private patients with suspected chronic appendicitis generally should be better worked up before operations so as to arrive at a more correct diagnosis. Associated concomitant lesions should be treated medically before operations are undertaken so as to weigh carefully how much the appendix is at fault. At operation the gridiron incision should be given up in favor of the ample, right rectus or a transverse incision, through which more thorough exploration can be made of the gall bladder, stomach, caecum, Jackson's membrane, Lane's kink, and the pelvic organs. In this way ineffectual operations will be much decreased, and one cause of reproach to surgery be eliminated.

Dr Charles L. Gibson has recently published the after-results, for 6 years, of chronic appendicitis operations in the New York Hospital. The number of unsatisfactory cases amounted to 30 per cent. He attributes the recent improvement in results to the fact that more thorough explorations are now made and to the use of 5 per cent. picric acid in the preparation of the skin before operation. Picric acid is non-irritating and produces no adhesions if the intestines come in contact with the skin covered with picric acid, contrary to iodine, which is very irritating to the peritoneum and has been responsible, undoubtedly, for many adhesions.

*Splanchnoptosis*—It is rather difficult to classify the 43 private visceroptotic cases. Radiographs were taken in 22 of the 43, of these, 14 showed prolapse of the stomach and colon with a low position of the right kidney. In 7, the colon was fairly in position, gastropnoptosis being the predominant feature. In 1 case the stomach was in good position with marked ptosis of the colon. Of the remaining 21 splanchnoptotics, 3 showed chronic colitis. It would seem from this table of 58 private patients that the greatest number of mistakes in making a correct diagnosis of chronic appendicitis has occurred among the so-called visceroptotics, if one can judge from this small number of patients. Ptosis may be either congenital or acquired and right-sided pains with general digestive symptoms are common complaints among them. In going over some of our ptosed cases we have found 120 non-operated patients in whom 87 complained of varying degrees of discomfort or pains in the right side. There was no reason in any of these cases to suspect

a surgical complication. Judging from this series, one would feel that a greater degree of conservatism should be exercised before resorting to operation in splanchnoptosis. The congenital visceroptotic is, as a rule, a young woman presenting a narrow costal arch, neurasthenic, with a caecum palpably low in the pelvis and often raised by manual manipulation, and a right kidney palpable in part or entirely. They are of poor physical development, under weight, flat chested with scaphoid abdomen, and those who have to stand on their feet are often flat-footed. They complain of pains in the back, in the head, in the pelvis and abdomen, due to general debility. They are usually tender in the lower, right quadrant and we are very liable to have the same symptoms after the appendix has been removed. The only real benefit derived from the operation is the rest in bed. The acquired conditions are the results of faulty posture, wasting diseases, pregnancy, and after the removal of abdominal growths. These patients are, as a rule, greatly benefitted by an abdominal support which increases their intra-abdominal pressure and gives them much relief. There are wide varieties of opinions on two conditions frequently associated with visceroptosis, namely, Lane's kink and Jackson's membrane. Lane considers the ileal kink to be due to ptosis of the caecum with resulting crystallization of the lines of strain into peritoneal adhesions. Wilkoff believes Lane's kink to be caused by chronic inflammation, not associated with ptosis. It may be pertinent to the subject to note that Keith's splinters in the intestinal tract conform very nearly in position to Lane's kinks, and are very suggestive of a condition due to spasm of Jackson's membrane. Jackson supposed the condition, which bears his name, to be due to an infection from within the caecum. Mayo on the other hand regards it as being caused by a late rotation of the colon, and the descent of the caecum from its hepatic position after the formation of the posterior parietal peritoneum. The caecum burrows its way into the right iliac fossa, investing itself with the right layer of peritoneum, which ultimately becomes the caecal membrane. Lane ascribes the pericaecal irritable condition as the ileal kink, and the peritoneal adhesions as the condition of the caecum. It would seem that neither Lane's kink nor Jackson's membrane are in themselves, harmful. Among the acquired visceroptotics, in the examination of an army, we were struck by a number of boys with round shoulders and prominent abdomens. There is no evidence. Association

the faulty type of breathing. Normally by filling the lungs with air, there is an outward expansion of the costal angles, and, through the vacuum thus created in the abdomen the viscera are sucked upwards. Where breathing takes place largely by means of the abdominal muscles, as shown by the very restricted excursion of the costal angles and the abdominal strain of the bad posture, there is a tendency to crowd the abdominal contents downwards. We are strongly convinced that many of the adhesions found in the upper abdomen, frequently holding the intestines in abnormal positions, are the results of this faulty posture. We encountered numerous such individuals in the army and they present a very strong argument for at least two of the benefits of universal military training, namely, a proper posture, and general physical development. In general little is accomplished by operations intended to support the prolapsed viscera; themselves and such operations should be thought fully and carefully undertaken only after non-success of all other medical means has been thoroughly demonstrated. Operations will then rarely be required for prolapse of the viscera. Setting up exercises would do more general good to womankind than any other one thing. The lack of muscular power among the better classes is appalling and with this goes a slackening of all the supports.

**Colitis**—Where a routine examination of the stools is carried out colitis should be easily recognized by the presence of mucus, either pure or blood tinged, and hard dry scybala, or unformed fermenting, putrid stools containing undigested masses of food. Proctoscopic examination will frequently reveal a hyperemic mucosa with small erosions or in more advanced cases actual ulcer formation.

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avulsion or division of the fine muscular nerve twigs to the lower portions of the internal oblique and transversalis muscles during the opening of the peritoneal cavity, leading to a partial or complete atrophy of the muscular fibres in the region of the internal abdominal ring, or, on the other hand, by compression of the same nerves by the encircling catgut sutures in sewing up the incisions in the transversalis and internal oblique muscles in repairing the abdomen after appendectomy. In none of these 200 appendectomies did an inguinal hernia arise subsequently.

*Chronic Duodenal Obstruction*—A condition has lately been recognized, principally by the X-ray pictures, which will account for some of the non-successes of appendectomy operations. It is chronic duodenal obstruction, due either to adhesions at the jejuno-duodenal junction or to compression of the duodenum by the overlying mesenteric vessels dependent upon intestinal ptosis. With these lesions may be associated an elevation of the first portion of the duodenum, owing to adhesions between the duodenum and gall bladder, producing a kink of the duodenum. A recent case is illustrative. A woman had had her appendix unsuccessfully removed for right-sided pains combined with extreme stomach flatulence and discomfort. On coming to us because of a continuance of her symptoms, fluoroscopic examination very beautifully showed the duodenum to be dilated to the size of one's forearm. The duodenal motility to overcome the obstruction at the mesenteric vessels was excessive. At operation the duodenal dilatation and mesenteric obstruction were absolutely confirmed. A gastro-enterostomy, in such a case, has been found to be unavailing as it leaves the dilated duodenum to puddle. An anastomosis between the jejunum and the second portion of the duodenum, proximal to the mesenteric vessels, was performed with immediate, most gratifying success, relieving the woman of all of her symptoms. Duodenal obstruction, in future, bids fair to be much heard from. It is easily demonstrated, best by the fluoroscope after a bismuth meal, and the measures for its relief are clear and certain.

In conclusion, the whole situation is apparently summed up in the statement that the appendix is taken out too indiscriminately for a multiplicity of diverse conditions, any or all of which may give rise to indigestion and right-sided pain. Our plea is for a little more thoroughness and conservatism in working out the preliminary diagnosis, and, at the time of operation, for a more careful exploration of the whole abdomen through an adequate right rectus incision, or a transverse one. It is a reproach to surgery that private patients are not so well worked up, preliminary to operations, as the hospital ward patients.

## PRELIMINARY REPORT OF WARD TREATMENT OF GONORRHEA IN THE FEMALE\*

By EMILY DUNNING BARRINGER, M.D.,  
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NEW YORK CITY

THE gonorrheal service of the Riverside Hospital, which has been temporarily transferred to the Kingston Avenue Hospital, Flatbush, is under the New York Board of Health, and is in a position to take gonorrhea in all of its stages, and give the patient the benefit of consistent routine treatment.

It may be of interest to mention that this venereal department has been founded as a result of the Federal and State appropriations for the study of venereal diseases, and that Dr. William H. Park asked for a special appropriation out of the State fund for the purpose of studying the bacteriological side of these cases, hoping thereby to match up the smear, cultural and serological diagnosis with the court findings. This part of the work is under the supervision of Dr. Park and Miss Minnie Wilson.

The court findings refer to the provisions made by the New York Board of Health, that women convicted on the charge of prostitution shall submit to an examination by a duly appointed Board of Health physician, or a private physician approved by the Board of Health to make such an examination. All of these provisions are in accordance with the regulations of the Department of Health covering the examinations, treatment, and isolation of persons affected with venereal diseases, chapter 264, laws of 1918. This is one way in which persons are admitted to the service.

A second source is from the workhouse, where women under sentence are found to be suffering from gonorrhea, and are referred to our service for treatment.

A third source is the voluntary patient who seeks ward treatment, having been informed that she is suffering from gonorrhea. The first two furnish by far the greater number of cases, but there is an interesting minority of cases who apply voluntarily to the hospital for treatment.

Any case entering is supposed to have had a definite diagnosis of gonorrhea made, which has been verified by a bacteriological examination. However, in a small percentage of cases, patients are sent in who have been arrested on a charge of prostitution, and are found to be suffering from a purulent vaginitis, presumably gonorrheal, but in which the organism has not been isolated.

After admission, each woman has a careful history taken in reference to the length of the

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 23, 1920.

infection, its severity, etc., and her blood is taken for the complement fixation test, and smears of the urethral and cervical secretions are examined. Following is the method used in obtaining the specimens.

Patient is placed on the table in the lithotomy position, the vulva separated and carefully dried with sterile sponge, operator using sterile gloves, inserts finger in vagina, and gently presses urethra toward meatus. Any pus exuding is obtained with sterile platinum loop. Skene's glands are then expressed and if secretion is obtained this is transferred to slide or culture media. Vaginal secretion is ignored as routine. Cervix, speculum introduced and cervix and vagina wiped dry with sterile cotton. Sterile platinum loop is then inserted into the cervical canal, and material obtained transferred to smear or culture.

The culture media which has given the best results and which is being used at present is 5 per cent glycerine veal agar plus horse serum.

In those cases where it has not been possible to isolate the gonococcus, various provocative measures have been tried. For a time provocative vaccine was used, but the results from this were not sufficiently encouraging to warrant its further use, and recently we have been using a few drops of silver nitrate, 2-10 per cent into the urethra. This as a rule stirs up a mild urethritis, and after fifteen to eighteen hours the discharge is examined and in some of these cases the gonococcus has been formed in a discharge previously negative.

As to the reliability and value of the complement fixation test, we are not prepared at this date to give a detailed report. Miss Wilson has a large number of observations under consideration, and will later report her statistics.\* At present we consider that a negative complement fixation means nothing. We find a large per cent of positive complement fixations among our chronic cases, and a large per cent of these become negative during the period of enforced treatment.

As to the clinical evidence of gonorrhea, when the serological and bacteriological proofs are absent. Further study and observation of these cases will be needed before any final opinion is expressed. At present we consider if there is evidence of a chronic inflammation of Skene's glands, as evidenced by a drop of pus on expression, and also if the Bartholin glands are found to be involved, that we are justified in making a clinical diagnosis of gonorrhea, irrespective of the condition of the uterus and tubes. Without the evidence of the Skene and Bartholin glands, and even in the presence of a chronic urethritis and salpingitis with history suggestive of infection, we are not willing at this date to consider

this sufficient for a clinical diagnosis of gonorrhea.

While it is not the purpose of this paper to go into the vastly important sociological problems connected with such a service, but to limit this discussion to the purely gynecological side of the subject, nevertheless in passing, it seems appropriate to mention of how great importance it is to make as accurate a diagnosis as possible in justice to these women. While they are not officially prisoners, they are officially detained by the city until cured, and there is a record on file as to whether or not they have had gonorrhea.

There is one class of cases that is commanding our further study, that of the possible late uncured case of childhood gonorrheal vulvo vaginitis. We all know the large number of female children that are infected with gonorrhea in our crowded city tenements, and how the scourge sweeps through hospital wards and asylums. Kelly, in his article on this subject, quoting Dr. Flora Pollock, states that in a series of 1,366 cases 139 or 10 and 21 per cent were children under fifteen years. The majority of these children are treated during the acute symptoms. Are they cured? What becomes of them in the community, and what picture may they present, which may obscure the true sizing-up of a case when years later they may be accused of prostitution and possibly have this stigma added to an already most unfortunate childhood history?

The following is a case in point. A M., 18, partially blind, having had an ophthalmia neonatorum, was referred to us as a voluntary patient from another institution, as a clinical case of gonorrhea. She had been examined by a young hospital interne, who promptly stated that she had a ruptured hymen, had contracted gonorrhea, and that there was a question of pregnancy. When examined, she was found to be very sensitive and the vaginal orifice while admitting one finger freely, was not different from many cases of undoubted virginal condition. She had a profuse purulent discharge which was negative by smears and culture for gonococcus. Her complement fixation was negative, and pregnancy was excluded. Going back over her history, we found that she had had a leucorrhoea as long as she could remember, shortly after birth, she believed, and that it had never been cured. She had been in institutions a large part of her girlhood. When questioned in regard to the charge made against her, she stoutly denied this on several occasions after a most searching examination, and she was convincing. Further bacteriological study of the discharges showed that after forty-eight hours' incubation the growth on the culture media consisted of—

- Gram positive bacillus (*Bacillus subtilis*),
- Gram positive cocci (*Staphylococcus aureus* and *albus*),
- Gram negative bacillus (*Bacillus coli*)

\*Miss Wilson and Dr. J. D. Smith have since published a report in the Journal of Immunology Vol. V No. 6 November 1920.

Our final estimate of this case was that she was probably a late manifestation of a childhood gonorrheal vulvo-vaginitis and this was placed on her record, thereby removing the stigma

When smears and cultures are taken, a tentative clinical diagnosis is sent to the pathologist, as to whether the case is acute, subacute, or chronic, the pathologist having on hand a description of the symptoms we, as nearly as possible, have tried to group under these headings. We are hoping in this way to get some bacteriological findings which we may gradually consider acute, subacute, and chronic. At present we have no special relation established.

Clinically, the findings considered especially important are the vulva, whether acutely inflamed or not. Skene's and Bartholin's glands, the cervix and tubes. A high percentage of Bartholin's and Skene's glands are found to be infected.

In estimating the degree of perimetritis in cases where the infection travels up through the uterus, and out into the Fallopian tubes, the loss of normal mobility of the uterus has become a finding which we consider of value. Also the degree of pain elicited by this examination, for the loss of mobility has become a fairly valuable gauge as to whether the case is acute, subacute or chronic.

We have had a number of cases under observation where these two findings tally fairly accurately with the temperature curve, leucocyte count, smear or culture. It has been interesting to note how all of these may improve together under treatment, and then there may be a relapse, when there will be a flare-up of temperature, leucocytosis, increase of local sensitiveness, and loss of mobility.

Bladder symptoms have to date been conspicuous by their absence. It is a most unusual thing to have a complaint of painful urination. These cases seem to be peculiarly tolerant of urethritis, and even the provocative treatment mentioned above has apparently caused no undue suffering.

Equally surprising has been the absence of ectopic gestation. On this service, where in almost every case one or both tubes are involved, one would expect that extra-uterine pregnancy would be found, if pregnancy were to be found at all. On the contrary, intra-uterine pregnancy prevails and in a fairly good percentage of cases. Looking over the record, I find that in 139 consecutive cases, there was not one extra-uterine pregnancy but eight intra-uterine.

*Treatment*—In the acute cases the patient is kept in bed with light diet and free catharsis. If the vulvitis is very severe, the vulva is irrigated frequently with a mild antiseptic solution, and no douching attempted until some of the oedema has subsided. As soon as is possible, douching is started. This is given in bed twice or three times a day, with little pressure and

every effort is made to keep the infection from traveling up into the uterus.

Subacute and chronic cases get routine douches twice daily of potassium permanganate, 1-6000 at a temperature of about 112 degrees, and about a gallon at each douching.

The introduction of the douche table as devised by Dr. Cable has simplified and added much to the efficiency of the douche. For the benefit of those unfamiliar with this, I will briefly state that the table is a white enameled iron examining table, stationary, with a small square drainage box in the lower portion of the table, this drainage box connecting with the waste pipe. Above the table, with hot and cold water connections, is a twenty-gallon tank, with an outlet tube running down to the upper edge of the drainage box. The tank is fitted up with a thermometer and gauge, so that the amount and temperature of the water can easily be read. The patient lies on the table in the lithotomy position with her buttocks protruding over the drainage box. A sterile glass douche tip is attached to the tube at the edge of the drainage box, and the patient inserts the douche tip herself, and holds it in place for about three minutes, during which time she gets about one gallon of irrigation. After this irrigation the speculum is introduced by the physician, and the cervix and vault of the vagina swabbed out with 25 per cent argyrol, and any other special treatment given.

We have in use three such tables, and two supply tanks, each table being connected with both tanks. These three tables can be using one tank at a time, while the other tank is being filled. The practical advantages are cleanliness, control of temperature and pressure, and an enormous saving of time for doctors and nurses. In two hours' time 50 to 60 such douches and treatments can be given. Wherever pus has been found in the urethra or Skene's glands, instillation of argyrol is made into the urethra.

Special precautions are taken with pregnant cases, that the douche is not given under too great pressure. In the later months of pregnancy this douching is often done in bed. These pregnant cases are kept on this service under active treatment until the patient goes into labor, and then transferred to the maternity service. Of the cases thus treated, several of which were very virulent, the outcome has been most satisfactory, without complication to mother or babe.

Wherever Skene's or Bartholin's glands are found to be infected, every effort is made to clear up the focus. A case with persistent discharge is kept under treatment until such discharge is negative by smear and culture for gonococcus and if possible, the treatment is continued until the discharge has disappeared. Because of their accessibility and proneness to chronic infection,

we are now advising the routine excision of all infected Bartholin's glands that do not yield promptly to treatment. Cases of endometritis, salpingitis, and perimetritis which do not yield to the above treatment are subjected to operation.

Some of the special problems to be considered in such a service are:

How long should expectant treatment be persisted in? Ordinarily a month's treatment is the minimum given. A patient often receives two or more months' treatment if progress is being made.

In a case that does not yield to expectant treatment, and in which symptoms remain stationary or grow worse, operation is advised. The symptoms which are especially considered in making this decision are persistent or recurring temperature increase of local inflammatory findings and pain.

Bearing in mind that a high percentage of tube involvement subsides spontaneously with rest and expectant care, we have offered operation only to those cases which seem intractable after careful observation and treatment. Three questions are to be considered in each case:

1. The individual equation. Is it best for the woman at this date to submit to an operation which may sterilize her, or may she still be cured non-operatively? We especially try to avoid operation in young first offenders.

2. As these women are sociologically a menace in the community, the question has to be considered whether operation will render them less dangerous by removing chronic sources of infection.

3. The economic question has to be considered. How long are we justified in prolonging treatment which would be hastened by operation?

The main interest of the service centers around question No. 2.

Where are the chronic foci which contain the latent gonococci?

Which foci remain infectious the longest?

If we can prove that the gonococci die earlier in pus tubes and abscesses of ovaries than in the cervix, Skene's and Bartholin's glands, then many a laparotomy will be contra-indicated. We have a series of such cases under study at the present time and I quote the following case to illustrate my point.

P. R., admitted to the ward early in December with a fairly acute set of symptoms, history about two months before admission. She had a profuse purulent discharge from the cervix, with positive smears and culture for gonococcus. She ran a fairly sharp fever at first, 101-102 and the left tube and ovary became involved. She had expectant treatment in bed for a number of weeks, during which time the mass involving the left adnexa subsided considerably. She would

have recurrences of temperature, pain, and the gonococcus persisted in the cervical smear. I finally advised laparotomy, having in mind that she probably had pyosalpinx, in which active gonococci would be found. At operation, however, I removed a pyosalpinx and abscess of left ovary and most careful smear and culture proved the pus from both of these sterile. In this case, the cervix was a far more dangerous focus of infection than the tubes.

Present requirements for release from the hospital:

No patient comes up for a final examination until she has had one month's treatment. She then must have two negative smears taken one week apart, one immediately following a menstrual period. Smears are taken from urethra and cervix. The finding of 90 per cent or more pus cells without the gonococcus or other organism, is considered presumptively a positive smear, and the patient is retained under active treatment until this percentage is reduced. At the present time we do not require a negative complement fixation, but the majority of cases ready for discharge have one.

The question comes up: What percentage of these cases are cured? Do we discharge any who may be a public menace? It would seem that only by working along the above lines in close affiliation with the pathologist, that these questions can be answered more accurately.

In closing I wish to express my appreciation of the cordial co-operation of Dr. Park and Miss Wilson in working out these problems, and suggesting new lines of investigation, and I further wish to thank Dr. J. D. Smith, resident house surgeon, for his careful bedside observations, and his assistance in preparing this report.

#### INCIDENCE OF CANCER IN THE CERVIX OCCURRING IN THE RETAINED STUMP AFTER SUPRA-CERVICAL AMPUTATION FOR FIBROIDS\*

By JOHN OSBORN POLAK, M.Sc., M.D., F.A.C.S.  
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**W**HILE the cause of cervical cancer is still unknown, there are certain predisposing conditions which have more than a pressing etiological significance. These are heredity, chronic inflammatory lesions in the cervix, child-bearing with its resulting lacerations and incident infection which are so constantly present in the puerous woman and other cervical traumatisms.

Cancer of the uterus is most commonly found in the cervix, and it is a clinical fact that cervical cancer is noted almost exclusively in women who have borne children, or have been subjected to some form of cervical traumatism with incidental cervical infection. In support of this statement Simpson in an analysis of 421 cases of cancer

\*Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 24, 1920.

of the cervix, found that more than 93 per cent were over 30 years of age, while 97 per cent of the total number had been pregnant one or more times. Hence it must be admitted that the most important predisposing influence in the production of cervical cancer are the traumatism of childbirth, which expose the cervical tissues to the incidence of infection, which in turn increases the cell activity in the region of the wound and supplies the necessary chronic irritation for active cell proliferation. Bonney states that in all cases of cervical cancer examined by him, there was evidence of erosion and cervicitis, and these conditions are more likely to become unhealthy and persistent with repeated pregnancies. Furthermore, cervical cancer most frequently originates in or near the external os on an eversion of one of the cervical lips, hence it would seem that chronic irritation paves the way for the new growth.

*Squamous cell cancer* primarily starts from the squamous epithelium covering the mucous membrane of the vaginal portion of the cervix, while adeno-carcinoma either develops from the cylindric epithelium covering the mucosa of the canal, or from that lining the glands of the cervix.

These facts have a clinical significance when supra-cervical hysterectomy is employed as the routine procedure for the treatment of fibroid tumors of the uterus, for notwithstanding the habit of some operators to cauterize or cone out the cervical canal after supra-cervical amputation. The areas in the cervix from which cancer usually originates are not destroyed, and a review of the literature will show that epithelioma *does occur* in the retained cervical stump. The relative frequency with which this occurrence takes place should make any thinking gynecologist question the advisability of performing the supra-cervical procedure as routine. During the past year, two cases of cervical cancer in the retained stump have occurred in the writer's practice, a brief history of these cases is as follows.

Mrs. H., 46 years of age, complaining of a large protrusion through the lower end of an old abdominal incision, pain in both iliac fossa and a sero-sanguineous vaginal discharge, was admitted to my service in the Long Island College Hospital in May, 1919. She was a widow and had one child twenty-one years ago. Her delivery was followed by a profuse hemorrhage and the puerperium complicated by septic infection. After her fever had subsided, the uterine bleeding recurred first, as a menorrhagia and later as metrorrhagia and on examination it was noted that she had a large soft myoma in the body of the uterus and in 1904 a supracervical hysterectomy and double salpingo-oophorectomy was performed by the late Professor Pozzi in Paris. From the time of her operation, she had been more or less constantly under medical observation

for anemia, but she complained of no pelvic symptoms *except a persistent leucorrhea*, which was of a purulent character and caused some vulvo-vaginal irritation until within a few weeks before her admission to the hospital. In February, 1919, this vaginal discharge changed in character and became serous and acrid. Douches were prescribed, but not until April of the same year, when the discharge became sanguineous, did her attending physician make any vaginal exploration. This examination demonstrated the presence of an everting and friable cauliflower mass, having its origin in the posterior lip of the retained cervical stump and filling the vault of the vagina. She was then referred to the hospital, and on May 17th, after removal of the necrotic tissue and cauterization of the opened surfaces, the abdomen was opened and a radical operation was done which included removing the cervical stump and its parametria with a liberal cuff of the vaginal wall. Her operative recovery was uneventful and she was discharged from the hospital on the 21st day after operation.

My second case was also in a parous woman 41 years of age, who had been operated on for a large fibroid tumor of the uterus, by a sub-total hysterectomy some five years before. At this operation her surgeon had conserved the left ovary in an attempt to preserve the ovarian secretion. On her admission to the hospital, she complained of the following symptoms, i.e., persistent pain in the left inguinal region, tenderness and soreness in the left lower quadrant which had existed since the time of her previous operation, and an irritating vaginal discharge which was sero-sanguineous in character.

On physical examination we found a well nourished woman, moderately anemic, with a lax abdominal wall and a hernial protrusion at the lower end of a median abdominal incision. There was tenderness on deep pressure in the left lower quadrant, and on vaginal exploration through a lax, lacerated introitus the cervix was found to be lacerated, the anterior lip enlarged, everted, infiltrated and friable.

A diagnosis of epithelioma was made and confirmed by the pathologist, a radical operation was advised and consented to, and on the following day the abdomen was opened. The ureters were isolated and the cervical stump with a wide portion of its parametria, the cystic ovary and a wide cuff of the vagina were removed. The patient stood the operation well and made an uncomplicated recovery.

The occurrence of these two cases within such a short period, both in married women who had borne children, after having had the supra-cervical portion of their uteri removed fifteen and five years before respectively, suggested to me the idea of investigating the incidence of cancer of the cervix in fibroid tumors of the uterus.

Unfortunately in this country but few clinics

make serial sections of the uterus after its removal. This however, is not the case in some of the foreign clinics, as Schottlander in six hundred cases of pan hysterectomy for fibroids found by ordinary laboratory methods *undiagnosed epithelioma of the cervix* in twelve of the specimens removed, and Herbert Spencer reports two hundred total hysterectomies for myomata of the uterus in which cancer of the cervix was present in no less than two per cent of the cases. This is *undiagnosed carcinoma of the cervix, which the sub total operation would have left to cause the death of the patient*. These reports tally very well with Noble's statistics where in one hundred cases of fibroid tumor of the uterus operated by him, two were complicated by cancer of the cervix.

Hence we see that in nine hundred cases of fibroid tumors of the uterus recorded and studied by accredited observers, undiagnosed cervical cancer was present in two per cent of the total number. This more than counterbalances the increased risk which is charged against complete extirpation by those who favor routine supra cervical amputation in fibroids.

Comparing our own mortality in one hundred supra cervical amputations, against one hundred total extirpations the figures are 15% for the supra-vaginal procedure against 2 per cent for the total removal.

In reviewing the reported cases and those reported in personal communications, received from my gynecological friends who have operated on a large number of fibroid tumors, I find that the occurrence of cervix cancer in the retained cervical stump is by no means uncommon, and as might be expected it has occurred at the age at which cancer usually attacks. In other words the age of the patient has been wholly consistent with the age incidence of cancer, as shown by Wilson in his graphics namely, that the great majority of these cervical invasions have occurred in women between forty and fifty or just about the age when it is most common for fibroids to produce those symptoms of hemorrhage and pressure which require their removal.

Another interesting fact gleaned from the literature which is also borne out by Leonard's review, is that this incidence excluding those few cases in which cervix cancer has occurred within a year after supra cervical amputation which can be reasonably said to have been co-existent at the time of the original operation, the new growth in the cervix has appeared at periods varying from five to twenty-one years after the removal of the original tumor.

Reviewing the histories of the cases reported, the fact that multiparity and chronic cervical inflammation bear a direct relation to the etiology of epithelial cancer, stands out in evidence. Con-

sequently, the condition of the cervix and the age of the patient should have greater consideration than is usually given to these conditions in determining the type of operation to be selected.

From a review of the foregoing statements one can hardly agree with Giles. In speaking of the fate of the cervical stump after supra-cervical hysterectomy he states, "that it should give no cause for apprehension."

He supports this statement with a report of one hundred and eighty one cases, where not one showed any signs of malignancy. Contrast this with a personal letter from J. F. Baldwin of Columbus, who has had a very large experience in abdominal surgery, states "A few months ago I operated on my eleventh case of cancer of the cervix, following previous supracervical hysterectomy. All but one of these patients were of the ordinary cancer age, and there was no suspicion of malignancy at the time of operation. This one patient was past thirty and had had one child."

From this brief review of the literature, and from personal communications received, we feel that it is fair to draw certain definite conclusions. First that cancer occurring in the retained cervix after the supra cervical operation for fibroids is a clinical and pathological entity, and that it may be stated that cancer of the cervix occurs in approximately two per cent of all fibroid tumors of the uterus.

Second that the great majority of these cases occur at the cancer age, namely, between forty and fifty, and in cervixes that have been traumatized by childbirth operation or have been the seat of chronic cervical inflammation.

Third that the great majority occur in the portio or just within the external os and are squamous cell cancer. Hence their point of origin is not removed by coning out the cervix.

Fourth that the interval of occurrence, excluding those cases in which the cancer has probably co existed at the time of the operation, has varied from five to twenty-one years after the original operation. Consequently, one cannot state positively that a given case of fibroid where the tumor is removed by the supra-cervical method, has not or will not have cancer changes in the cervix.

Fifth that chronic cervical inflammation stimulates continued tissue reaction in the form of cell proliferation, and thus paves the way for the lawless proliferation in cancer.

Finally it would seem to the writer that if the above premises are true, that the routine employment of supra cervical hysterectomy in those fibroids which need operation should be abandoned, and that partial removal of the uterus should only be employed when the cervix is free from injury or disease in the nulliparous women.



# ENCEPHALITIS LETHARGICA (EPI- DEMIC ENCEPHALITIS)

By HENRY LYLE WINTER, M.D.,  
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**F**OLLOWING the appearance of influenza in 1917-18, a symptom-complex characterized by disturbances of consciousness and usually by more or less transitory cranial nerve irritations or palsies was described by a number of observers.

The disease was widely discussed in the lay press under the name "sleeping sickness."

While the name may be descriptive of some of the cases it was confused by the public with the Congo "sleeping sickness," and gave the newspapers wide scope for descriptive articles which while sensational, were perhaps useful in centering attention upon the condition. It is probably unnecessary to say that the diseases are unlike.

Whether the disease is new or not is open to question. Acute lethargic conditions occurring in epidemics are described in the medical literature of the early eighteenth century.

Several accounts of the occurrence of epidemics, characterized by more or less lethargy, have been reported from different parts of Europe during the past thirty years. We have all seen cases of polioencephalitis occurring sporadically, or in the course of epidemics of poliomyelitis which exhibited more or less disturbance of consciousness, and which behaved similarly to some of the cases of encephalitis recently observed. It appears, however, that the pathologic changes in poliomyelitis and encephalitis are dissimilar, and it is probable that while the same distribution of lesions may occur in both diseases the causative factors are distinct.

For the present we must, therefore, regard the diseases separately. To the best of my knowledge there is no question amongst neurologists but that encephalitis, whether a new disease or not, is a distinct clinical entity.

The fact that encephalitis occurs most frequently in those who have suffered from influenza, and that the disease made its appearance about six months after the influenza epidemic of 1917-18 clearly points an etiological relationship. Beyond this the cause of encephalitis is unknown.

All we can say is that it is probably an airborne infectious disease, and, also, probably contagious.

The pathologic changes may occur in any part of the brain, and may involve the pia. The most marked changes are, however, usually found in and about the basal ganglia and in the floor of the fourth ventricle.

In the two autopsies which my series of twenty

cases have furnished the pia was very markedly involved in one, and suffered no changes in the other. The lesions in the brain itself were very similar in both cases.

In the one case the pia was much reddened over its entire surface and along the larger sulci there were minute grayish granules which glistened somewhat, at first glance suggesting small tubercular studs. These were readily removed by the slightest rubbing, being merely exudates; they were reported on microscopic examination as leucocytes.

The pia blood vessels showed distinct engorgement, especially of the small veins.

On sections of both brains the entire structure, both gray and white, was flecked with small reddish specks, most of them no larger than a pin point, with here and there larger spots readily recognizable as hemorrhages. These appeared to be more numerous in the white substance, but microscopic examination showed a greater involvement of the gray substance.

Microscopically many of these specks were found to be merely congested vessels or small extravasations of blood into the peri-vascular spaces. Others were distinct hemorrhages which had extended into the surrounding tissues. In some places this infiltration was very marked. This was especially true of the gray matter of the basal ganglia.

Considering the extent and severity of the vascular changes there was very little actual destruction or organic impairment of the nerve cells. The case showing the meningeal involvement was very rapid in its course, death occurring on the eighth day of the disease. No actual nerve cell changes were found in this case. The other case died after an illness of four weeks. A considerable number of cells in the basal ganglia of this brain showed marked cloudy swelling, but no actual cell disintegration was found.

The question arose in my mind as to whether or not the *duration* of the illness might explain the presence or absence of cell changes. That is, whether the changes might not be due to a long-continued shutting off of the blood supply rather than to an actual toxic invasion of the cytoplasm.

Several neurologists have contrasted the cell changes in poliomyelitis with those found in encephalitis, making the same point of differentiation which I have.

It is obvious that with such widely distributed and numerous lesions as those described almost any symptoms which may arise from cerebral changes may be present.

In any given case the determination of the dominating symptoms will depend upon the location in the brain of the most pronounced changes. It is also obvious with such a pathology, always involving, as it does, the conducting

\* Read at the Annual Meeting of the First District Branch, Medical Society of the State of New York, at Poughkeepsie, October 21, 1920.

pathways as well as the cells, more or less profound disturbances of consciousness must result and also that these disturbances must vary in their manifestations in the same way that the pathologic changes vary in their severity in different locations.

It is in accord with clinical experience as well as with pathologic findings that some form of disturbed consciousness is present in every case of encephalitis.

These alterations in consciousness vary from profound lethargy, from which it is difficult to arouse the patient, to active delirium with well-sustained delusions and with hallucinations and illusions.

Excepting the fact that all patients show some kind of alteration in consciousness any individual case may as pointed out above, differ so materially from others that grouping them appears impossible. If, however, we follow a series of cases it will be found that they will fall into several symptom groups.

Bringing his classification upon the symptoms exhibited, Tilney has made a workable division of cases and one which helps in diagnosis by pointing out the predominating symptoms which may occur. Tilney's classification is as follows:

- 1 The lethargic type
- 2 The catileptic type
- 3 The paralysis agitans type
- 4 The polioencephalitis type
- 5 The anterior poliomyelitic type
- 6 The posterior poliomyelitic type
- 7 The epileptomimic type
- 8 The acute psychotic type

He also refers to an infantile type occurring in babies of four to six weeks of age. This is a group rather than a type, and is interesting only because of the age of the patients. The three cases reported were all of the lethargic type.

Differential diagnosis of epidemic encephalitis is to be based upon several definite peculiarities which are most important.

The first is found on consideration of consciousness. In my cases the patients could always be roused to a condition of active consciousness, could fix their attention and give rational replies to even complex questions.

The length of time during which the attention could be held varied with the severity of the disturbances of consciousness, but was present throughout the disease except in four fatal cases which could not be aroused during the terminal stages of the illness.

While it is possible to attract and hold the attention of patients suffering from disturbances of consciousness due to other causes, it has been my experience that such results are never so readily and completely obtained or, especially, so successfully maintained.

The second point of differential diagnosis is suddenness of onset. This has occurred in all of my cases, regardless of which group of symptoms appeared first. If the illness began with lethargy that symptom came on without warning. In those cases which began with cranial nerve symptoms their appearances were equally unheralded.

As an example of this the first symptom in five of my cases was double vision, and in each case this appeared while the patients were at work and apparently in their usual health. I have not seen any of the cataleptic, the posterior poliomyelitic, or the epileptomimic types, but other neurologists have described sudden onsets in these cases.

It is therefore, necessary to regard any sudden neurological disturbance with suspicion.

The transitory character of the symptoms especially at the beginning of the disease is also an indication of the presence of encephalitis. In the majority of my cases the symptoms either disappeared or markedly subsided just as abruptly as they had appeared, to return again after the lapse of longer or shorter periods. In one case, which began with ptosis of the eyelid, about thirty six hours intervened between the first and second appearance of the symptom. Intervals of such length are probably unusual, but except in several severe cases of the lethargic type some distinct interval always occurred.

When the disease is established there is some increase in temperature. Except in the fulminating cases the temperature range is low, from 99 deg to 101 deg, rectal. It rarely reaches above 102 deg even in the later stages of severe cases. I have not seen the higher temperatures which have been reported.

The pulse shows no characteristic changes, except that in some cases it tends to become irregular and intermittent probably because of disturbed innervation through cranial nerve irritation.

The respirations are usually altered, being retarded or accelerated in accordance with the character of the disturbance of consciousness. They may also be altered by cranial nerve involvement, the excursions of the chest walls being different on the two points.

The blood pressure was taken at intervals in five cases of the lethargic type, and was persistently low.

The blood count was made in fifteen cases and showed a white count of from eight to ten thousand. I presume that this may be considered a little high for the series.

The spinal fluid was under pressure in some cases, but increased pressure was not the rule.

All of my cases showed an increased cell count, from eighteen, the lowest, to two hundred and fifty, the highest. Other observers do not report an increased cell count in all of their cases, so

that it may ultimately prove of little or no diagnostic value. It probably depends upon the degree of involvement of the meninges, and may vary at different periods of the disease in any individual case. In other respects the spinal fluids were negative. No bacteria were found. Three of my cases showed evidence of cerebral pressure. In two of these cases the symptoms were so marked that the possibility of mistaken diagnosis and the presence of tumor was considered for some time. In these cases the eye grounds were repeatedly examined, and showed optic neuritis and hemorrhages into the retina. Careful study of one of these cases was made by Dr. H. A. Waldron, of Newburgh, who found the condition to be one of descending optic neuritis, described by von Graef as an extension from meningeal changes at the base. Except for these cases ophthalmoscopic findings were negative.

The prognosis is doubtful in every case. It must be considered both as to recovery from the acute illness and the persistence of symptoms. The possibility of a more or less permanent invalidism in a variety of forms must not be lost sight of.

In a general way you may consider that the greater the disturbance of consciousness the poorer the prognosis for recovery. In considering the possibility of permanent defects my experience is that this bears a direct relation to the duration of the acute disease. The longer the disease the greater the liability to permanent defects.

The duration of the disease varies from eight days to eight weeks or more.

There is no specific treatment for encephalitis. The maintenance of nutrition and elimination are essential. The diet should be liquid, and I have obtained the most satisfactory results with meat broths and cereal gruels made with water. I have used prepared peptonoids to advantage. Milk, and foods made with milk, have proved difficult to digest, and I do not use them. Feedings should be given every three hours. Water is necessary in fairly large quantities. Plain water is frequently poorly borne, so that I give albumin water, trying to get in at least a quart in the twenty-four hours in addition to the feedings.

The low blood pressure referred to indicates asthenia. This is present in all cases, and contraindicates the use of active cathartics. The constipation which is present should be corrected when possible by enemata.

Restlessness demands the use of sedatives. Such drugs as veronal have been advised, but I have had more success with two to five grain doses of chloral combined with bromide. Formin (urotropin) may be given for the general condition, its use being predicated on the ground of a bacterial origin of the disease. I have never thought it of any value, however.

Heart irregularities, which are frequent, may be met with the usual drugs. In this connection I was very much impressed by the effect upon the general condition of a few doses of digitalis given to correct an irregular heart. One of the physiologically tested preparations was given hypodermically. After the second dose the patient's lethargy became less pronounced. The drug was continued, and the mental condition cleared in a few days and continued clear. As this was the last case I saw I have had no opportunity to try the drug again.

It is possible, or even probable, that the recovery was merely coincidental. At the same time, if we consider the pathology and the effect of digitalis on the vascular system, it is not unreasonable to assume that the drug *could* be valuable.

I do not feel that the routine employment of repeated lumbar puncture, which has been advised by several neurologists, is desirable or even indicated. In those cases which exhibit pressure symptoms it should be done with sufficient frequency to relieve the symptoms. In the majority of cases, however, no pressure symptoms are present.

The pathologic changes, you will remember, are peri-vascular extravasations and hemorrhages. Theoretically reduction of pressure in the tissues surrounding and supporting the blood vessels increase the liability to extravasation of blood and invasions of these tissues. As lumbar puncture reduces the pressure it is theoretically a wrong procedure. My own clinical experience is also against it.

My purpose in presenting this subject in a rather sketchy way has been to direct your attention to the wide variations of symptoms which may occur, and thus put you on your guard.

I also hope that bringing out the principal diagnostic features will be helpful.

## THE RESULTS OF THE PRESENCE OF ADENOIDS IN INFANCY

By ROWLAND G. FREEMAN, M.D.,  
NEW YORK CITY

**N**OT many years ago adenoid obstruction was not recognized as such and adenoid removal was very rarely resorted to.

We have progressed from this stage so that now adenoid obstruction in children over two years of age is generally recognized as a condition which, if persistent, requires removal of the adenoid in order to preserve the general health of the child.

Strangely enough this generally accepted method of procedure does not, in the mind of some physicians, apply to infants, and this fact was recently brought to my attention by a case

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 23, 1920.

which I will quote. A child, five months old, with marked adenoid obstruction, which had persisted practically from birth, with evidences of reflex irritation elsewhere in which the physician who referred the case, a mature, intelligent, and successful man, opposed the removal of the adenoid, and a prominent throat man who was called in consultation took the same attitude and said that this was a very small post-nasal space and if the adenoid were removed in infancy it would probably recur.

As I am thoroughly convinced from my own experience that both men were absolutely wrong in this attitude, and as I believe their opinion is shared by others, I think it is well to discuss this matter.

To my mind an adenoid obstruction in infants under two years of age needs relief by operation much more than in older children, for these babies do not have the intelligence that leads older children to seek relief by a wide open mouth, and consequently they suffer more from fright and insufficient intake of air. Moreover their nervous stability is less the younger they are, and thus babies are more likely to develop reflex nervous symptoms than older children. Also the statement that adenoids removed in infancy are more likely to recur than if removed later is absolutely without foundation in fact. For of many children who were subjected to adenoid operation in early infancy and who later had tonsillectomies, I cannot recall one from whom sufficient adenoid tissue to have caused any obstruction was removed in the tonsil operation. In only one case can I recall rapid redevelopment of adenoid. In that case, after removal of a large adenoid in the spring, another equally large one was removed in the autumn after the child had spent a summer at Greenwich, Connecticut.

Adenoids are very common in early infancy. In the last 247 cases that I have taken charge of 132 had adenoid symptoms from birth or early infancy, and in 111 of these the symptoms were persistent and operation was resorted to.

Marfan,\* in a recent article, says, "Before the age of twelve years much the commonest cause of adenoid hypertrophy is congenital syphilis, and the younger the child the more likely is syphilis to be the cause. Below the age of three months it is almost certain proof of syphilis." In none of my cases has there been any evidence of syphilis, and in one with a congenital heart murmur which gave a peculiar heart outline by X-ray a Wassermann test was negative. This statement of Marfan's certainly does not apply to private practice cases in New York.

Adenoid obstruction usually begins in the first months of life when the post-nasal space is very small and slight enlargement of the adenoid is sufficient to render nose breathing very difficult.

When the adenoid is left in place these babies

at first keep their mouths but slightly open and protrude the tongue between the partly separated lips. As they use their mouths more for breathing the alar nares collapse and the tonsils become enlarged and red.

If at this early stage the adenoid is removed the child soon closes its mouth and the nasal opening becomes larger and thus one avoids the adenoid face which usually persists after late operations. In neglected cases the adenoid deformities quickly ensue. I have under my care now a child who had adenoid obstruction from birth. At a year and a half this child has a triangular mouth opening, a narrow high vault of the roof of the mouth and enlarged and congested tonsils. It will be difficult to get this child to keep the mouth closed even with operation at this early age.

Adenoid obstruction in infancy leads to a number of reflex manifestations which are not usually recognized as having any relation to adenoid obstruction.

Fewer cases are influenced in the gain in weight than one would expect, but occasionally a child who has been gaining slowly will begin to gain properly as soon as the adenoid is removed.

Restlessness is one of the commonest results of adenoid obstruction. These children are poor sleepers, they toss about at night and wake up at intervals. When this restlessness becomes very severe it is in some cases, followed by convulsions. This has occurred in two cases seen by the writer recently and in one several years ago, all in cases of adenoids needing removal in which the operation was put off from time to time.

A boy born in the autumn had constant adenoid symptoms and adenoid removal was urged when the child was six months old. It was not allowed, however, and when the child returned to town, a year old, he was very restless and waking often during the night. At fifteen months he developed convulsions one evening. On washing out the bowel very little fecal matter was removed and a stomach tube was introduced which allowed exit to only a little gas. It was evident that the irritation of the adenoid was the cause of the seizure and after its removal the child became a quiet sleeper and showed no further restlessness.

Another case was brought to me for feeding in January 1919. As there was marked adenoid obstruction, an operation was advised but not allowed. Less than two months later a slight convulsion occurred, and ten days later a more serious one lasting one and one-half minutes with no temperature or bowel disturbance, but the child had a cold with increased adenoid obstruction. An operation for removal was done immediately with relief of the nervous symptoms and a gain of a pound and a half in the next three weeks as compared with a loss of a pound in the preceding three weeks. The child was seven months old when operated on.

A third case which showed evidence of adenoid obstruction during the first year was not under observation during the second year, at the end of which he was found to be suffering from severe adenoid obstruction. Arrangements for operation were made, but in the evening preceding the day set for the operation, the child had a temperature of 104 with severe convulsions lasting for seventeen minutes. Six days later the adenoid was removed and the child had no more convulsions.

Eczema in infancy is another condition which is much influenced by adenoid obstruction, and in treating cases of eczema complicated by such obstruction surprising results may be obtained by adenoid operation.

In one case of general eczema operated on at The Roosevelt Hospital the child's skin was nearly clear of eczema on the second day after the operation.

In any case of eczema in infancy associated with adenoid obstruction an improvement in the condition of the skin may be expected from adenoid removal.

Asthma is another reflex nervous result of adenoid obstruction but one more generally accepted as having a relationship to this condition.

In conclusion I would say that

An obstructive adenoid should be removed by operation as soon as it has persisted several months. Those cases in which it has existed from birth should be operated on by the third or fifth month.

Neglect to operate at this time leads to the development during the first year of the short upper lip, the narrow high vault, and the collapsed nostrils which are associated with the adenoid face.

Neglect to operate at this time leads also in certain cases to reflex conditions, failure to gain in weight, restlessness, convulsions, asthma and eczema.

### REPORT OF THREE CASES

- 1 Spontaneous rupture of the heart
- 2 Spontaneous rupture,—aneurism of the heart
- 3 Primary adeno-carcinoma of the transverse colon

By K SELLERS KENNARD, M D,  
NEW YORK CITY

**S**PONTANEOUS rupture of the heart is of sufficient rarity in clinical experience to warrant the report of every case that may come under observation as the result of proof by autopsy.

It is this fact rather than anything new regarding the condition, that prompts the recording of these cases. These cases came under observation as Medical Examiner's cases, and,

consequently were attended with but little history, and such as was obtained is more or less unreliable, as is quite usual in the class of cases coming under the jurisdiction of that office.

### CASE No 1

G—A male aged 55 years, was a painter by trade, and had been living with one family for 34 years, and for whom he did work about the house when not employed at his trade. No history of alcoholism, syphilis or any acute or chronic illness, existing prior to the past year, could be elicited from this family.

He had a sharp attack of influenza during the past epidemic in New York, being bedridden for some weeks, and made a slow recovery to his previous robust physical condition. Since then, he had complained of pain in the lumbar region, which appeared from the treatment described, to be of muscular origin. For the last six months, at irregular intervals, there was headache, and he appeared to be getting weaker, losing his usual vigor, and lately had appeared somewhat stupid,—“a little out of the head.”

At about 10 10 A M on the day of his death, while cleaning some paint brushes at the kitchen sink, he was left alone for about five minutes, and when his companion returned, he was found on the floor upon his hands and knees, his head under the sink and was unable to respond when spoken to. As described, the facial expression was blank, the eyes staring, skin dusky and lips pallid. He fell to his side, and upon the arrival of a nearby physician, was pronounced dead, twenty minutes after the attack.

Autopsy was performed twenty-four hours after death.

Nothing noted externally, facial expression calm, skin sallow, which may have been a natural condition, and the examination of the internal organs, with the exception of the heart and lungs, may be dismissed as negative, as they presented nothing which related to the condition in the heart. Upon opening the thorax, the pericardial sac was distended throughout its extent from above at its junction with the great vessels, to its attachment to the diaphragm below. The outer surface of the pericardial sac was glistening, but its translucency was impaired, and beneath the membrane could be seen anteriorly and laterally, a uniform, deep purplish color. Opening the sac in the mid-line permitted a small quantity of thin, bloody fluid to escape, estimated to be about 50 cc in amount, and within the sac was a great mass of clotted blood, rather firm, moulded to the surface of the heart and when removed was found to weigh 320 grammes. There was no inflammation of either layer of the pericardium.

The heart was in normal position and its external dimensions were not increased. An

excess quantity of fat covered the anterior surface of the auricles and was fairly abundant upon the anterior surface of the right ventricle and this surface of the ventricle presented a number of dark, purplish spots, one half an inch in diameter and which appeared to be areas in which the muscular wall had undergone degeneration and softening in advance of other portions of the ventricular wall.

At the base of the left ventricle beginning at the coronary sinus (which latter was negative) there was a linear tear in the wall of the ventricle which tear was one inch in length its edges finely ragged, and which extended downward in a line perpendicular to the sinus and parallel to the muscle fibers of the anterior wall of the left ventricle.

The ventricle on section showed a cavity of average size and on the inner surface of its wall was the internal opening of the tear which had extended completely through the ventricular wall. The inner opening was just below the anterior valve of the aortic semilunar and behind the chordæ tendinæ attached to the valve. The inner opening was smaller than the outer and its edges more ragged. The muscle of both ventricles was soft and boggy, light yellow in color and this appearance was quite uniformly distributed throughout the muscle substance.

All of the valves were negative a few spots of fatty atheroma were scattered throughout the aorta, the larger of which areas was one-fourth inch in length.

Both lungs were greatly engorged with blood the pulmonary trunks being filled with blood, as were the small vessels throughout the lung substance.

A section from the wall of the left ventricle was examined microscopically and shows a fatty infiltration of the muscle fibers to a marked degree.

#### CASE No 2

P. A.—male aged 30 years, married, shoemaker by trade.

The history obtained from the brother with whom the patient had lived was to the effect that he had not been feeling well for the past two years during which time he had been gradually getting weaker, though still able to conduct his business.

There was a history of an attack of pneumonia. Also, the deceased had been a moderate drinker of wine. For the last six months, other than weakness and occasional attacks of head ache, there was no particular complaint of which the patient had spoken.

He went to work as usual on the day of his death, and having finished his day's work just before supper he began to shave himself. While standing in front of the glass he fell to the

floor, apparently in a faint. He was pronounced dead a few moments later, by a physician, who was summoned from his office in the same building.

Autopsy performed fourteen hours after death.

The skin of the face is pallid the pupils equally dilated the facial expression calm.

Upon opening the thorax, the pericardial sac is seen to be greatly distended and its translucency is obscured by a purplish color beneath it.

The longitudinal measurement over the distended sac is nine inches the transverse measurement seven inches the greatest circumferential measurement was nine and one-quarter inches.

On opening the pericardial sac in the mid-line, a quantity of reddish fluid escapes, and inside the sac is a dark red clot of blood completely filling the cavity of the sac and closely moulded to the surface of the heart. This clot was purplish in color, somewhat fibrinous, and weighed 230 grammes upon removal.

The heart weighed 300 grammes. The ventricles had stopped in systole, the auricles in diastole.

In the wall of the left ventricle there was a dilatation about the size of a walnut which was filled with blood clot and fibrin, and this cavity had ruptured by a small opening, through the wall, onto the surface of the heart at a point between the aorta and the pulmonary artery.

The heart wall shows, grossly, an extensive degree of fatty degeneration, the organ being lemon yellow in color very soft and friable and the pericardial fat was much increased in quantity.

Throughout the abdominal aorta there was a marked degree of fatty atheroma, and the diameter of the aorta just above the diaphragm was less than one-half an inch.

Microscopical examination of the heart wall shows fatty degeneration of the muscle tissue.

Both lungs especially the right were engorged with blood and the pulmonary vessels were filled with dark fluid blood.

Other organs negative.

#### CASE No 3

J. D.—Male aged 82 years, history unknown was admitted to hospital by ambulance, in extremis and presented the clinical symptoms of intestinal obstruction.

The patient was in deep coma, and vomiting material which was mixed with blood and of distinct fecal odor, and which at this time, was also being discharged through the nose. Pulse imperceptible, skin cold and clammy, there being profound shock.

He died one hour after admission.

Autopsy performed twenty-one hours after death. Body of an aged male emaciated skin

jaundiced but not deeply so. Eyes shrunken, cornea glazed, a double inguinal hernia present.

Lungs show senile atrophy, heart negative, mediastinal lymph nodes negative.

On the left side of the chest between the visceral and parietal pleura, between the fourth and sixth ribs, there was a circumscribed collection of pus, white in appearance, thick, and measuring about a teacupful in quantity.

The stomach was enormously distended with gas, its walls considerably thinned, but the mucosa was everywhere normal in appearance. The pyloric end of the stomach, the duodenum, and all parts of the small intestine, save for great distension of gas, were negative.

In the transverse colon, three inches from the junction with the ascending colon, was felt a mass about the size of the average fist. The wall of this portion of the gut, and the peritoneum surrounding it, were swollen and soft, and the tissues of the gut contained a clear serouslike fluid. The colon was adhered to the under surface of the liver by recent adhesions, easily destroyed. By pressing the mass lightly, between the fingers, it felt soft and boggy, but by firmer pressure resistance was met which was distinctly within the tumor mass. The gut on either side the mass was distended with gas.

The mass was now cut into. It measured four-and-a-half inches in width and completely filled the lumen of the colon, at the same time being incorporated in the wall of the transverse colon. It was not encapsulated. The periphery was soft and succulent, necrotic and foul-smelling. Extending towards the center of the tumor, its consistency became more and more firm, until, in the center it was white, hard, and firmly resisted cutting.

The base was attached to the mesenteric side of the gut, was less necrotic than elsewhere. Microscopic examination shows adeno-carcinoma. No foci were detected anywhere else in the body, though careful search was made.

## COMPULSORY HEALTH INSURANCE

By A. L. BENEDICT,  
BUFFALO, N. Y.

**T**HIS social disease is not cured, we are merely enjoying an intermission between legislative recrudescences, it behooves the medical profession to continue its treatment, taking advantage of the intermission.

The agitation in favor of compulsory health insurance has one strong point, on superficial consideration, the fallacy of which does not seem to have been sufficiently emphasized. This is the implication of the word *Insurance*. Almost every sensible man uses insurance against one or several potential disasters—why not against sickness? Those who would neglect insurance, if

left to their own volition, are often compelled to carry it by others: the owner of a building by the mortgagee, a singer or actor by his manager, an employee by his employer, either against the loss of his services, or more commonly in the form of bonding against financial loss. Why not make health insurance compulsory, for the same general reason?

Without attempting to copy a formal definition of insurance—and indeed a definition may itself be defined as a concise statement whose accuracy cannot be gainsaid, but which gives little or no information as to meaning—its significance may be analyzed as follows. First, it is an attempt to guard against at least the financial results of a risk of something which rarely occurs, but when it does occur, is overwhelming, or at least of serious magnitude. Secondly, the price (premium) paid for this protection is absolutely or relatively small, or both. Thirdly, having paid this price, the risk is transferred to a disinterested party of supposedly—and by legislative control—practically sufficient financial strength to carry any loss without danger of its return to the insured. This is effected by the fact that the insurance corporation has large resources and deals with a sufficient number of individual risks, each of minor degree as compared with these resources, so that the chance of any particular disaster is converted into a fairly definite and calculable routine expense. Perhaps, for practical purposes, especially in the present connection, a fourth item in the significance of the word insurance should be mentioned: the premium so far as the individual insured is concerned, represents not simply the total potential loss divided by its average incidence, but also administrative expense and profit. This fourth item is important in this connection because, while all thought of profit is waived, both the potential loss and its average incidence are quantities which cannot be estimated with any degree of accuracy, and the administrative expense is also at present an unknown quantity. About all that can be said on either of these two points is that the amount of service required for any given sickness or disability under state health insurance will be considerably greater than that under private arrangement between patient and physician, both on account of the tendency of a person insured against any loss to get all he can from it, and because the responsibility of guarding against even a slight chance of neglect will be greater.

Let us examine the question of compulsory health insurance under each of these four headings. First, is the disaster one of rare occurrence and overwhelming, or at least of serious magnitude? As to rarity, we must certainly answer no. Some form of disability occurs so frequently that it can scarcely be considered in the ordinary accident insurance, bonding against same category as fire insurance, life insurance,

theft or loss of money, or any other kind of insurance in common use. With compulsory health insurance in operation, it would, for reasons already indicated, occur still more frequently. It is more in analogy with insurance against blow-outs as compared with the usual fire, theft and liability insurance on an automobile. In any particular hour or for any particular odometer distance the occurrence of a blow-out is a rare chance, for a year or 10,000 miles it becomes a repeated certainty, of quite definitely calculable loss.

Neither is the disaster usually overwhelming or even of great financial seriousness. The United States Department of Labor in a collection of 1,214 cases gives the total average cost of both medical and dental services per annum per family as \$4.64, a little over 50 per cent, incurring an expense of from nothing to \$30, less than 2 per cent in expense of more than \$200. At present wages, even the latter amount cannot be considered as overwhelming especially as it would very rarely occur except for a single year at long intervals. Still more important is the well known fact that this form of service is the one thing which anyone can have, in full quantity and quality, for whatever he can afford to pay down to zero and into the negative expense of additional assistance, given by or at least secured by the recommendation of the medical and dental attendants. If the compulsory health insurance legislation proposed provided adequately and permanently for a really staggering and overwhelming medical or surgical disaster such as blindness, loss of both legs, of a hand and arm etc. or if it were confined to such really rare and overwhelming disasters one might regard it differently.

Secondly is the premium relatively or absolutely small or both. Here again, we must answer no. Stanton, in a very valuable article in the December, 1920 issue of the *New York State Journal of Medicine*, quotes statistics of a mutual benefit association, showing that the premium is about 21 per cent of the potential (average) loss. Compare this with the one third per cent standard for ordinary fire risks and the rates for life, automobile and other forms of insurance or even the few cents insurance on the comparative minor amounts of postal parcels, and it will be seen that one of the prime inducements to insurance is absent.

Third is the burden of potential loss transferred to a disinterested party of practically sufficient financial strength? Most emphatically yes, unless one might raise the quibble that the state instead of being disinterested, is so much interested in the beneficiary that it is coddling him. But there is the practical qualification that, while a person taking any ordinary form of insurance is freed from obligation after paying the premium, or, at most, might feel the general

business depression following a tremendous loss such as the Baltimore fire or the conceivable influence of enormous claims for life insurance following an epidemic of greater magnitude than any we have experienced in this country, the expense of health insurance would obviously be so large and might easily be so unexpectedly large that it will inevitably be felt by the very persons supposed to be benefited by it. If the scheme were to apply to a comparatively small part of the population of really small incomes, the beneficiaries probably would not feel it at all. They would get as insurance what they are already getting as philanthropy, and the burden, while shifted from them in theory, would really be shifted from the medical and allied professions to the taxpayers generally. But with the scheme carried out on the scale proposed, the nominal beneficiaries would scarcely have to wait for the indirect shifting of taxation and business upkeep expense, before being compelled to bear in a roundabout way the difference between their share of the premium and the total cost.

Getting down to brass tacks, compulsory health insurance lacks every practical point which the word insurance implies. The term insurance is not even a talking point, for the fallacies associated with it appear as soon as it is talked about in any truthful spirit. Disregarding the very obvious interests of the medical profession, it is simply a disguised form of pauperization. It does away with or supplements the forms of medical philanthropy established on a proper basis and maintainable on a proper basis if honestly controlled. It fails to provide adequately for overwhelming and permanent or protracted cases of disability to which a similar scheme might very properly be applied without great cost to the state directly or to any of the participants in paying the ultimate cost. It does not protect even the more or less dependent class which is already pretty well provided for by existing means, which may not be ideally systematized, but which have the same justification as the many peculiarities and theoretic inconsistencies of the British government namely, that they have developed gradually to meet actual demands, and have been perfected in operation by long and wide experience. On the other hand it applies to a class in a very limited and almost a political sense, and in this class it far transcends the proper limits of philanthropy. The scheme is so extensive that it will not only reduce medical practice to a chronic condition but there is serious danger that it will revolutionize the entire financial administration of the State government—and let us remember that New York is not the only State threatened—as well as that of its major industrial institutions upon which the State itself is largely dependent for its support.



## Correspondence.

THE HUHNER TEST REPLY TO DR REYNOLDS  
New York City

To the Editor, NEW YORK STATE JOURNAL OF MEDICINE

I have read with deep interest the article by Drs Reynolds and Macomber, entitled "Diagnosis in Sterility," in the December issue of your valuable journal. Any article by Dr Reynolds on this subject is always of value and commands respect. When, therefore, I read his criticism of my test in the diagnosis of sterility, I concluded that in my various publications and in my book<sup>1</sup> on the subject, I may not have expressed myself with sufficient clearness, for Dr Reynolds in the paper mentioned, seems to have overlooked entirely the main advantage of the test. In justice to myself, as well as to my readers, I deem it advisable to correct this impression and to set forth briefly, and as clearly as possible, the most important point in the test, and in doing so, to answer the objections thereto suggested by the eminent gynecologist.

When I first brought out this test,<sup>1</sup> I designated it the "cervix test." In a later publication,<sup>2</sup> I designated it as the "spermatozoa test," for the reason that the test consists in the search for spermatozoa not only in the cervix, but also, at times, in the fundus uteri as well. Most other writers on sterility, however, both here and abroad have named it the "Huhner Test," but the main object of the test must not be lost sight of, and that is, the search for spermatozoa in the *cervix*, and to a lesser extent in the fundus uteri.

Before I published this test, and indeed before my work appeared, I had devoted about six years to the study of spermatozoa in the female genitals, and my book records the data of about 500 examinations and experiments on the behavior of spermatozoa in the human female genitals. Since that time I have, of course, greatly added to these observations.

As a result of these many observations, I have shown that the spermatozoa deposited in the *vagina* are, as a general rule, killed by the vaginal secretions within a few hours, while those deposited on the *cervix* and within the cervix, survive for many hours and sometimes even for several days.

From the above observations of the behavior of spermatozoa, I have deduced the general maxim that, as a rule (to which there are of course exceptions), pregnancy results from those spermatozoa which are directly ejaculated upon the cervix during coitus, and not from those deposited in the *vagina*. I am fully aware, in making this statement, that pregnancy has resulted from the mere deposit of spermatozoa upon the *external* genitals, sometimes in the presence of only a pinhole opening in the hymen, but these exceptional cases ought not to have any influence upon the *practical* problem of sterility, and do not vitiate the general rule, that it is the spermatozoa deposited directly upon the *cervix* during ejaculation that is the main factor in the production of pregnancy, as those deposited in the *vagina* die so very rapidly from the vaginal secretions. Were the spermatozoa deposited in the *vagina* during coitus the main factor in the production of pregnancy, the method of preventing pregnancy would be the simplest sort of procedure, merely washing out the *vagina* after coitus, but this we know not to be the case.

Following up my deductions, I do not care how much semen runs out of the *vagina* after coitus, because, as above stated, as a general rule, the semen deposited in the *vagina* has very little influence on impregnation. I cannot, of course, go more extensively into this question here, but in my previous work I devoted an entire chapter, giving experiments and data, refuting

Runge's theory of the importance of *effluvium seminis* (the name he applies to the running out of semen after coitus) in the production of sterility, as well as to disproving the theory, so long held, that impregnation is mainly caused by the cervix sucking up semen after coitus from the pool left in the *vagina*. As before mentioned, I do not say that pregnancy *never* results by this procedure, but I *do* say that it is the exception.

After this long, but rather necessary, explanation, let me now come to the objections concerning the "Huhner Test," made by Drs Reynolds and Macomber, in their recent article. Let me quote the particular passage:

"When this post-coital examination was first proposed, by Dr Max Huhner, of New York, it promised to be the most important of all examinations for sterility, and, indeed, at first sight seemed as if it were to render the whole subject easy. Subsequent experience has shown that it has grave limitations, and that unless it is performed with many precautions and unless the data obtained are checked by reference to the results of other carefully conducted examinations, it leads to so many errors that it is to be questioned whether the increasing popularity which it is obtaining will not be productive of as much harm as good at the hands of those who are inexperienced in its use."

"In the first place, the examination of the vaginal secretions is worthless unless it is conducted very shortly after coitus, at the longest within an hour and as much sooner as can be managed. The vaginal secretion normally kills the spermatozoa or a great proportion of them within a couple of hours and with very moderate vaginal hostility most of the motion may have ceased after a little more than a single hour. The chief point in the post-coital examination of the vaginal pool is then to observe the length of time that the spermatozoa remains in good condition in the *vagina*. An examination two or three hours after coitus is worthless, since it will ordinarily show them all still whether the secretion is normal or actively hostile. The examination is then seldom of value unless it can be made within an hour, and the earlier it is feasible the better. It is never conclusive on the fertility of the male except when it is highly favorable, nor on that of the female except when considered in relation to the time which has elapsed. It is affected also by the length of time that the woman has been on her feet, since the decrease of the pool by drainage decreases the proportion of the amount of seminal fluid to the amount of vaginal secretion present. The degree of retention of the pool also varies greatly with the shape of the *vagina*, and the estimation of the result must be modified by consideration of all these factors, and also in connection with the previously ascertained microscopical character of the secretion, with its varying bacteriological character and the varying degree of destruction of the cytoplasm of the contained epithelium in the specimen previously taken under normal conditions, and not post-coital."

From this description we at once see that Dr Reynolds makes his examination from the semen deposited in the *vagina*, and especially the pool left in the posterior vaginal fornix after coitus. *This, however, is not the method I have outlined in the "Huhner Test."* As so often stated herein, and it cannot be emphasized too strongly, because it is the *main* point, the "Huhner Test" consists mainly in the search for spermatozoa in the *cervix*. As a matter of fact, I now rarely take specimens from the *vagina*, for but little information is obtained from such an examination. The only time I take specimens from the *vagina* is in cases where no spermatozoa at all, either dead or alive, are found on the cervix after coitus. In this latter condition, I search for spermatozoa in the *vagina* in order to determine whether there has been any proper intromission at all, because, in some of these cases, the husband suffers from premature ejaculation or may have a severe hypospadias, so that no semen enters the genitals at all. In my *experimental* work also, I have naturally

<sup>1</sup> Huhner, Max. Sterility in the Male and Female and Its Treatment. Reblman Co., New York.

<sup>2</sup> *Ibid*. The Value of the Spermatozoa Test in Sterility. Urologic and Cutan. Rev., November, 1914.

searched for spermatozoa everywhere. But barring these exceptional conditions after the speculum is in place I insert by syringe directly into the cervix and obtain the specimens therefrom. Thus at once answers all the objections made by Dr Reynolds. I do not care how much semen runs out of the vagina while the patient is en route nor do I care how much or how little a pool is formed in the vagina for I get my specimens from the cervix and as I have so frequently emphasized it is the cervical spermatozoa and not the vaginal ones that will reach the ovum. Those deposited during ejaculation on the cervix, stick there and do not fall out while the patient is en route. Again the statement made by Dr Reynolds that the examinations are worthless unless made within one hour after coitus is also incorrect for the same reason. It would be correct for examinations made from the vagina but not for those from the cervix. As a matter of fact very many of my patients cannot reach my office until eight or ten hours after coitus and in normal cases live spermatozoa are found in the cervical mucus. When I search for spermatozoa in the fundus I purposely wait for at least two days to elapse after coitus before making the test. The statement that the test is of value only when conditions are highly favorable is likewise incorrect for the very reasons given by Dr Reynolds because here again he takes his specimens not from the cervix but from the vagina. A glance at the statistics given in my book will show that I have recovered live spermatozoa from the cervix as long as 75 days after coitus. There is always the one point in the test, which makes all the difference between the method I suggest and the way it seems to have been made by Dr Reynolds. I get my specimens from the cervix where the spermatozoa stick for hours and days while Dr Reynolds draws his conclusions from the specimens taken from the vagina where the semen may run out after coitus (especially when the woman assumes the upright position), and where the natural vaginal secretions dilute those that remain within a short time.

In a paper I recently read before the New York Academy of Medicine I quoted at some length Dr Reynolds very admirable and painstaking observations of the various movements of spermatozoa and stated that 'While these observations are very interesting from a scientific point of view and reflect great credit on the perseverance and scientific acumen of the observer it is not necessary to go through all this detail from purely a practical point of view. And it is the simplicity of the Huhner Test as compared with other methods that is its greatest advantage. In a communication like the present I cannot of course go into the many dry nistic data to be obtained from the test. Let me in conclusion but briefly state the more striking of its advantages.

After the speculum is inserted with a syringe or platinum loop we obtain a specimen from the cervix and place it under the microscope. In normal cases we at once see very many very lively spermatozoa. The whole thing takes but a few minutes yet what a wealth of information is obtained from this few minutes examination! What do we care whether the cervix is in its normal position or not, or whether we could reason out theoretically that the penis during coitus goes into this cul de sac or that whether the vagina is very short or of excessive width or length the living spermatozoa on the cervix tell us at once that for that particular penis the cervix is in the right position to catch the semen. We need not care if informed by the patient that the semen runs out after coitus because we have proof before us that enough has reached the cervix. We need also not worry if told that ejaculation is very rapid because we know that the husband can deposit his semen in the right place. These are but a few of the deductions which can be made from a few minutes' examination with the Huhner Test.

\*Huhner, Max. The Practical Scientific Diagnosis and Treatment of Sterility in the Male and Female. Med Record May 9 1914.

If we do not find any spermatozoa on the cervix we know at once that the husband is responsible for the sterility even though live spermatozoa may be found in a condom specimen. In this latter condition, as before mentioned, the husband may be suffering from premature ejaculation, hypospadias, urethral stricture, etc. This is one of the main advantages of the test.

If dead spermatozoa are found on the cervix and the condom shows live normal spermatozoa we at once diagnose that there is something about the female genital secretions which have killed the spermatozoa.

If live spermatozoa are found within the fundus uteri we at once know that an antelexion, no matter how acute, is not the mechanical cause of the sterility and we also know that the endometrial or other genital secretions are not inimical to the vitality of the spermatozoa and we need not subject these secretions to expensive chemical or bacteriological examinations to come to this conclusion, because we have the physiological proof right before us.

I have here but briefly enumerated some of the advantages of my test. I cannot of course, in a communication like the present go into any very extensive detail. Those desiring such detail will find the same in my previous articles.

MAX HUHNER, M.D.

#### MATERNITY BENEFITS

New York City

To the Editor NEW YORK STATE JOURNAL OF MEDICINE

The January issue of the STATE JOURNAL contains on page 29 an article entitled Maternity Benefits which is worthy of further consideration. It is essentially a protest against State maternity insurance and the Shepard Tower Bill and attacks this scheme mainly on the score of economy and as being unnecessary. It seems to the writer that the subject of better obstetric care is one that should not be dismissed with a resort to arguments of this kind. It is well enough for physicians who are not acquainted with the facts to make the broad statement that the supervision of the woman about to bear a child and likewise her after care is unnecessary. The testimony of those who are actually engaged in obstetric work in our large cities and likewise those who are acquainted with its shortcomings in the rural districts should be consulted in such matters. That there is a lack of proper obstetric care is well shown by the high puerperal mortality and morbidity rate and the still too large proportion of babies sacrificed to preventable conditions. It is astounding to think the United States should occupy such a low place in the roster of nations in this respect. The figures upon which this statement is based are so readily accessible in a variety of publications that no one need remain in ignorance of them.

Education both of the community and the doctor has in the past 25 years resulted in improved obstetrics but the end is not yet here. We should not be content to allow the situation to rest as it is. It must unfortunately be admitted to the discredit of the medical profession that an obstetric case is not regarded as seriously as it should be. Pregnancy and labor, while accepted as physiological acts, verge in many instances so closely upon the pathological that we cannot ignore the fact. How can a better understanding of the situation be brought about? Shall it be by legal enactment or by propaganda based on voluntary measures? Personally I do not believe that the desired result will be attained by the passage of national legislation that has for its primary object the appropriation of funds to be expended for direct care of the patient either by physicians or nurses. Nor do I believe that co-operation by the individual States in a national measure of this kind will produce any better results. It is also questionable whether the assumption of such function by the State or local departments of health will accomplish

anything. The national government, however, may well take under advisement the situation as it affects its own interests. It seems to me that the recognition of the fact that health is an essential ingredient in the well-being of the nation should further stimulate the agitation for a department of health or public welfare, or whatever else one may be pleased to call it, in the President's Cabinet.

The English have seen fit to provide a ministry of health, although unfortunately its functions seem to be largely taken up with straightening out the inefficient system of national health insurance. The establishment of a national Department of Health would do away with the necessity for creating commissions and other bodies to take up some of these important questions, and in this department could be collected the activities of various bureaus that are now scattered through other governmental agencies. It is only by the creation of such a department that sufficient dignity will be given to the important matters of national health conservation and preservation. Unfortunately the agitation for an improvement in unsatisfactory health conditions has become centered in the hands and minds of a class that physicians are very fond of decrying and labelling with such epithets as "social reformers," "meddlers," etc. There may be an element of justice in this designation in some cases at least, but many of the facts upon which these well-meaning individuals base their campaign cannot be denied. Were they to devote their attention along the lines suggested in your article, that is, towards better religion, morals, habits, dressing, living and working conditions, etc., they would meet with an equal amount of criticism.

Your correspondent seems to think that a continuation or an increase in the powers of the local departments of health will be sufficient to accomplish the end sought and that, for example, a physician after reporting a birth may rely on the local board of health to send a visiting nurse to follow up the case and help give postnatal care. It is naively stated that "this costs the State not one penny," and that likewise the advisory functions of the State Department of Health could be called into play "without any cost to the commonwealth." I feel quite convinced that our State departments or our local departments of health might possibly welcome such an increase in their field of endeavor, but it would mean for them an enormous increase in power and necessarily of funds and their expenditure. By what method a physician would deliver a patient and then expect the public authorities to look after her subsequently is beyond the realm of reason and common sense. The forte of the doctor in pregnancy is not merely to be an attendant upon the woman in labor but to watch her during the prenatal and postnatal periods. He cannot relegate this duty and responsibility to governmental supervision without diminishing his own personal importance in the case.

I hold no brief for compulsory maternity insurance and I do not believe that it is the business of the State to socialize this important function as a whole or in part but provision against the natural consequences of married life should be made both by the father and mother, and if this can be done by means of a voluntary insurance system much will be accomplished for the good of the community as well as the individual. We often find at the present time that married couples enter into the responsibilities of parenthood without sufficient provision having been made for this event and that is why the doctor may find himself compelled to accept the miserable fees that are often paid for confinement work. If the State could provide a voluntary insurance system it might fill the bill, although the creation of a special department for this purpose would undoubtedly be attended with the usual evils that follow the relegation of such activities to commissions that are often political in their aspirations. Our privately organized insurance institutions do not seem to have found this field of endeavor either favor-

able or profitable, and aside from one or two instances I do not believe that this question has been seriously considered by them. But if a system of group insurance for factory employees is being developed, why cannot this scheme be extended along the lines indicated. While there are evils attendant upon the practice of group medicine and possibly obstetric practice through the medium of a commercial organization, this may be surrounded with such reservations that its evils will be largely eliminated. Some of our far-seeing and wide-awake insurance companies may possibly find a way to limit their participation in a maternity case to the payment of a cash benefit merely, supplied to the insured at a definitely developed cost. This would certainly be superior to the method often met with of having insurance carriers supply medical treatment along the lines of the more or less questionable system of medical care which has been developed in the working out of the Workmen's Compensation Act.

Destructive criticism of the measures here under discussion, such as the Shepard-Towner Bill, will not contribute to the solution of the problem. It is necessary that the latter be given very extended thought and attention, and before arguments are advanced either in favor of or against the same, that such opinions be not influenced by the economic factors merely, as they may appeal to the mind of the individual physician. Better obstetric care of the expectant mother is an undoubted asset to the community, but I do not believe that this can be secured by the mere appropriation of funds to be expended either by the Nation or the State in the manner proposed by this Act.

A careful study of the proposed measure discloses an effort to clothe with great power a subordinate bureau in a department of the government which is unfortunately incumbered with certain influences that cannot readily be eradicated as long as "Labor" is in the ascendant. The Children's Bureau in Washington has accomplished some splendid work and has had many able persons associated with its activities, but unless I am in error, these were originally and primarily concerned with the problem of children in industry. But now a great extension of the activities of this agency is contemplated, together with the expenditure of large sums, and the organization of an elaborate departmental machinery with its array of clerks, stenographers, assistants, and other officials *ad infinitum*.

One may well ask how much of the appropriated funds will be available for those who may possibly be benefited? It is my firm conviction that very little improvement in obstetrical care will result through this means, no more than has been done for agriculture by the Congressional distribution of seeds. No, we must go further afield. But the medical profession will not accomplish anything for betterment in the care of pregnant women by a mere denunciation of the Shepard-Towner Bill, it must substitute constructive rather than destructive criticism and this must first of all be preceded by a recognition of the importance of obstetrics as a department of medicine by our medical schools and hospitals. If the profession refuses the responsibility of this question, those of the laity who take it up should not be heedlessly condemned, but led along the right path. Little attempt has been made to do this, and I know of no memorial addressed to Congress or its reference committee on the subject by a representative medical body. But our Women's Clubs and other organizations have endorsed the measure in an unqualified manner, and the possibility that the bill may pass the Lower House as it already has the Upper, is not a remote one. Should this occur, the profession can only blame itself for the lack of foresight and constructive energy which has already resulted in the incorporation of so many other laws that restrict and interfere with medical practice in its ideal sense.

GEORGE W. KOSMAK, M.D.

# STATE MEDICAL LEGISLATION

Seneca Falls

To the Editor, NEW YORK STATE JOURNAL OF MEDICINE

Since reading the symposium on 'State Medical Legislation' published in your January issue and the able discussions that followed it, I have thought that as one of the rural physicians of an average of 28 years of practice, as referred to by Dr Biggs, I would like to say a few words as to the attitude of up State physicians in regard to the present proposed mass of legislation along medical and health lines.

First let me remind your readers that while the relative number of physicians in proportion to the population may be now reduced in this State and especially in the rural districts that we are even yet far ahead in the relative proportion to that existing in the British Isles or in Continental Europe and that the supply of doctors is, like that of any other necessity of life, governed very much by the law of supply and demand. There are no complaints of any scarcity of doctors in this vicinity there being usually two where one was needed while public or private hospitals provide accommodation for all needed surgical cases within reasonable distances of patients.

One of the editors of the JOURNAL of a previous year wisely said that the number of students of medicine who entered the profession as a career with ultimate fame as their object was relatively small nearly all medical students having as their object the earning of a respectable livelihood and the idea of being of some benefit to their fellow creatures. I believe this to be true and that this latter attitude has developed in the main capable and self reliant practitioners of the healing art who were not afraid to take up their work with its responsibilities away from laboratories other than those very excellent ones provided by the State and without any sense of helplessness when deprived of those medical conferees whose absence is so nearly fearfully deplored by Dr Biggs.

In view of the impending legislation for Health Centers to aid rural doctors and rural residents I will say that the doctors do not want any such aid from the law makers of this commonwealth, nor do I think the residents would want it when they come to count the cost about five times what compulsory health insurance was computed to cost. Is it any wonder that doctors are accused of obstructionism when such projects appear? They must fight for their very existence if all medical work is proposed to be handed to the public free of charge.

As to constructive suggestions I believe all physicians will applaud those of Dr Winter regarding the chiropractors to get behind a bill to make it a general qualification for any variety of practice to pass the same examination that we were compelled to pass and to have the same educational requirements for entrance to practice. Incidentally it was not the herculean efforts of the State Board of Health but the interposition of the Regents of the University of New York that caused our late Governor to disapprove of the so called Chiropractic bill which had passed both houses of the last session of our legislature. Again in a constructive line in solving the problem of the lack of young doctors in rural districts the idea would be advanced that the present high standard of education in medicine while nearly ideal for the man desiring to make medicine a career is too high for the man who wishes to make it an honorable means of livelihood. The young doctor in years gone by, whatever his ability was nearly always a poor boy. When he left medical college he was obliged to begin practice in some rural community. After a few years he would if his ability warranted migrate to the city. In this way some of the best and most successful city physicians developed. A notable example of this was the career of the late Dr H A

Didama of Syracuse. Now with a seven or eight year course of study students of medicine are or must be rich men's sons in order to afford expenses for a medical education, and when graduated become largely specialists of an unseasoned type not often in skill or wisdom a credit or a final word in their chosen line. In this somewhat chaotic state are the graduates in medicine today? That is what is the matter with the medical profession too many self appointed specialists?

Will Health Centers afford a cure? No. Let us admit the poor but often worthy student by establishing the minimum college entrance requirements in medicine to a high school diploma or its equivalent and then grant the degree of Bachelor of Medicine, as does England on graduation, with subsequent work and examinations for the degree of Doctor of Medicine and with still higher requirements and examinations for those who desire to enter the specialties. Is this not a constructive suggestion and would it not operate to bring back the young graduates to the rural communities?

FREDERICK W LESTER

## Deaths

BURNETT, WILLIAM JOHNSON, Long Island City, Detroit, 1869 member State Society Physician St John's Hospital. Died December 6, 1920.

FUCHS, FREDERICK LOUIS, New York City, New York Eclectic Medical College 1881, Fellow American Medical Association, member State Society. Died December 3, 1920.

JACK, HARVEY P, Hornell College of Physicians and Surgeons Baltimore 1891, Fellow American Medical Association Fellow American College of Surgeons, Member State Society, Gynecologist St James Hospital, Chief Surgeon Bethesda Sanitarium. Died December 31, 1920.

JANEWAY, HENRY HARRINGTON, New York City, College of Physicians and Surgeons, New York 1898, Fellow American Medical Association American Cancer Research Member State Society Academy of Medicine Attending Surgeon Memorial Hospital. Died February 1, 1921.

KNIGHT, EVA ELLEN, New York City Woman's Medical College & New York Infirmary 1891 Fellow American Medical Association, Member State Society, New York Academy of Medicine. Died January 17, 1921.

MOSHER, BURR BURTON, Brooklyn, Long Island College Hospital 1890 Fellow American Medical Association Member State Society Member Brooklyn Orthopedic and Surgical Societies Surgeon in Chief House of St Giles the Crippled Consulting Surgeon Wayside Home. Died January 31, 1921.

OLDA, JAMES J, Stapleton S I McGill University, 1859, Member State Society Physician Staten Island Hospital. Died January 12, 1921.

PISER, GODFREY ROGER, New York City, New York University 1897 Fellow American Medical Association Member State Society American Pediatric Society Academy of Medicine Attending Physician Post Graduate Hospital Visiting Pediatric Park Hospital, Consulting Pediatric Portchester Hospital. Died January 19, 1921.

STEVENS, GEORGE THOMAS, New York City, Castleton Vermont, Medical College 1857, Fellow American Medical Association Fellow American College of Surgeons American Ophthalmological Society Member State Society New York Ophthalmological Society. Died January 30, 1921.

WOODBURY, MALCOLM SUMNER, Clifton Springs Jefferson 1906 Fellow American Medical Association, American Advancement of Science, Member State Society Chief Physician and Superintendent of the Clifton Springs Sanitarium. Died January 6, 1921.

WOODEN, CHARLES D, Rochester, Bellevue Medical College 1876 Member State Society Rochester Pathological. Died January 8, 1921.

## New York State Journal of Medicine.

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street, New York, N Y

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## THE SCIENTIFIC PROGRAM FOR THE ANNUAL MEETING OF THE STATE SOCIETY

The Committee on Scientific Program is sparing no effort to make this meeting in Brooklyn go down into history as the one Scientific session that has provided a program so replete in the medical and surgical advances of the past year or so, that the members of the Society from distant parts of the State will feel well repaid for their journey to the Borough of Brooklyn, the most populous Borough of the Greater City

This year, in addition to the regular section meetings, there has been arranged for Wednesday and Thursday afternoons a series of clinics at Kingston Avenue Hospital illustrating the varieties and complications of diphtheria and measles. This hospital affords a wealth of material for the study of the exanthemata, and the clinics will give the visitor an opportunity to see almost every phase of these infections. There will also be held, on Wednesday and Thursday afternoons, a series of clinics demonstrating the common affections of the eye, ear, throat and nose, at the special hospitals in both Brooklyn and Manhattan.

Symposia have been arranged by each section, which will include contributions from the master minds of this country. Both William J. Mayo and George W. Crile are to be our guests, and will take part in the scientific sessions. They will add their bit to better surgical diagnosis and practice, while Farr, of Minneapolis, with his moving picture films, will show us how readily almost all surgery may be done under local anesthesia, and thus relieve us of the difficulties and dangers of a general anesthetic.

The Pediatricists will meet in joint session with the section on Public Health to discuss child welfare, syphilis, the nursing mother and the rôle of the Pediatricist in the Maternity Hospital, while the Medical section will hold a joint session with the Orthopedic surgeons on the subject of the therapy of arthritis, which bears such an intimate relation to focal infections in remote parts of the body that no general practitioner can well afford to be absent from these presentations.

The field of neuro-surgery, which received so much stimulus during the World War, has a prominent place on the program in the joint session of the surgeons and neurologists. This is a distinct field in surgery demanding expert training, and one in which the general surgeon and the occasional operator has much to learn. Brain and spinal cord tumors and brachial plexus injuries will be discussed by such authorities as Frazier, Elsberg and Adson.

The meeting halls are specially well arranged as to light, ventilation and acoustics. All of the section meetings are to be held in one building, except the joint sessions, which will be held in

the Auditorium of the Library Building, directly opposite the Armory, so that no time need be lost in going from section to section. In this way our members will be able to hear papers in several sections, without going outside of the Armory. Thus, we believe, will be a distinct advantage, and will materially augment the attendance at the section meetings.

The entire program has been arranged with the view that the visitor can get the maximum of information with the minimum expenditure of time and effort, and is as a whole, so attractive that few will feel that any session can be missed.

JOHN OSBORN POLAK  
*Chairman on Scientific Program*

### THE LEGISLATURE

THE Legislature of the State of New York has now been in session for one month and a survey of the measures proposed for new laws shows relatively little in which the medical profession can be of assistance in constructive work. A dozen bills have been introduced which have a bearing on matters of interest to physicians in a minor degree and it will serve no purpose to detail them here. The County and State Committees are doubtless giving these matters close attention to decide if they deserve the support of the profession, or if corrective suggestions should be sent to the lawmakers who have them in charge. It is evident that the experience of recent years has made the medical profession appreciate to a greater degree the importance of attention to legislative activity. As soon as this interest becomes still more manifest, the press will make it less difficult to follow what the Legislature is doing.

The present session will not close however without the introduction of measures dealing with public health questions of vital interest. In these matters the medical profession is best qualified to advise the legislators and the general public concerning the merits of the proposed enactments. When they are being considered, it is not only necessary for every public spirited physician to lend his support to the County and State Committees in the preparation of their recommendations but he must also help actively in shaping public opinion and must use his personal influence with every Senator and Assemblyman in the best interests of the people of the State.

It is not always a simple matter for even a well informed person to comprehend the full meaning of a proposed law and this may be combined with absence of any knowledge concerning a similar law in existence elsewhere. For these and numerous other reasons the establishment of a Legislative Bureau was suggested some time ago. The main object was to be

the careful, competent analysis of every proposed law together with an investigation of the value of a similar law existing in any other state or country. The proposed plan was rather involved and probably too broad in scope at all events it was not approved by the House of Delegates. Our Counsel is lending valuable aid in matters of Federal and State legislative policy, and in this broader field of State Society activity, the House of Delegates may in their wisdom evolve a system for better understanding of proposed laws in the interest of public health and consequent public welfare.

### ANNUAL CONGRESS MEDICAL EDUCATION LICENSURE HOSPITALS AND PUBLIC HEALTH

CHICAGO MARCH 7-10, 1921

THE preliminary program of this Congress demonstrates the increasing value of these yearly meetings in Chicago under the auspices of the Council on Medical Education and Hospitals and the Council on Health and Public Instruction of the American Medical Association, the Association of American Medical Colleges, the Federation of State Medical Boards and the American Conference on Hospital Service.

Aside from the consideration of such important subjects as 'Practice of Medicine Under the Group System,' and 'Relation of the General Practitioner to the Specialist' the first day will be devoted to a 'Symposium on Graduate Training in the Various Medical Specialties' by Drs. George Blumer, H. M. McClanahan, A. S. Hamilton, W. A. Pusey, C. H. Frazier, W. B. Lancaster, Wendell C. Phillips, R. W. Lovett, Hugh H. Young, J. Whitridge Williams, Victor C. Vaughn, C. M. Jackson, J. Erlanger, C. W. Edmunds and James Ewing. This to be followed by a Summary of Reports on Graduate Teaching, by L. B. Wilson, Chairman of Committee on Graduate Medical Education of the Council on Medical Education and Hospitals.

The following days will be devoted to equally interesting subjects such as 'The Medical Curriculum,' 'Medical Examinations and Licensure,' 'Conference on Hospital Service,' 'Rural Health Centers,' and 'The Organization of the Public for Health Work.' These subjects will be detailed by such men as William Pepper, Hugh Cabot, J. Whitridge Williams, David A. Strickler, Horace D. Arnold, George W. Whiteside Esq., Counsel for the New York State Medical Society, S. S. Goldwater, George E. Vincent, William J. Mayo, Victor C. Vaughn and others.

These annual conferences attract the foremost men interested in the subjects to be considered and should be attended for mutual benefit by all those whose activities place them at the head of labors in these fields.

## THE CHIROPRACTOR

THE effort of chiropractors to secure State licensure has resulted in more earnest attempts to determine exactly what is meant by chiropractic and what influence its licensed practice might have on public health. The *New Jersey State Journal*, in its December issue, quoted extracts from a most valuable investigation made by the Hon Mr Justice Hodgins, the Commissioner appointed by the Lieutenant-Governor of the Province of Ontario to inquire into and report upon, among other things, the present position, status and practice of chiropractors, and to make such recommendations in regard thereto as he might think desirable. This commission was dated September 29, 1915, and the report was made on October 13, 1917, the elapsed period allowing a thorough, painstaking and eminently just legal investigation, study and opinion. This report is so complete and convincing by detailed facts based on evidence, and the opinions are so logical, that it should be carefully studied by everyone concerned. Though inclined to reprint it here, some additional extracts must suffice, if only to stimulate the reader to secure a copy of the original report, printed by order of the Legislative Assembly of Ontario.

"The education received by chiropractors is of such short duration and is so fundamentally different from that of any other school, that it is difficult to regard their desire for legislative recognition as seriously as that of the osteopaths. As compared with the osteopaths there is a more marked weakness in numbers, in training and an absolute want of real investment in educational facilities.

There is nowhere apparent any desire to approximate either to the regular medical standards or even to those of the osteopaths. This school is quite irreconcilable, as appears from their statements and literature, and any attempt at fusion or co-operation would be quite futile."

"Their repudiation of all modern scientific knowledge and methods is such that it would be impossible to recommend any way in which they could be allowed to practice by which the public could be safeguarded."

"I cannot bring myself to the point of accepting, as part of our legalized medical provision for the sick, a system which denies the need of diagnosis, refers 95 per cent of disease to one and the same cause, and turns its back resolutely upon all modern medical scientific methods as being founded on nothing and unworthy even to be discussed."

"A very clear illustration of the sort of instruction which may be picked up at a so-called chiropractic college is found in the evidence of one Pickles, taken at an inquest in St Thomas, Ontario, in April, 1917, extracts from which are transmitted with this report. He was a farm hand, and took a correspondence course extending over three months, in which he wrote about twelve or thirteen letters, and received about the same number. He then went to the college in Sault Ste Marie carried on in three rooms, under Dr Robbins, and spent two months there—heard lectures on anatomy, physiology and dietetics, and attended clinics, that is saw treatment of patients, saw charts showing nerves, but did no dissection. This was his whole medical education, and on its conclusion, in 1912, he got a diploma as 'Doctor,' put out his sign, advertised and began practising."

The following part description of the Palmer School of Chiropractic of Davenport Iowa, generally acknowl-

ed as the foremost one, is credited to the Pennsylvania Bureau of Medical Education and Licensure.

"They pretend to give a course in obstetrics with no practical experience. A person who assumed to practice on information gained from this course alone would be dangerously incompetent."

"Some of the professors are exceedingly ignorant. The 'professor' of chemistry alleged he taught the 'Widal Test' chemically, but chemicals for even ordinary tests were not in evidence, those in evidence showed no marks of use, most of the bottles being still sealed."

"The institution is not physically equipped to turn out safe graduates."

"What is asked by chiropractors is that they should visit patients in hospitals and sanatoria, examine for insurance and issue death certificates. This seems to me to be open to all the objections and difficulties I have stated as to osteopaths, and to others even more formidable having regard to the exceedingly narrow theory upon which chiropractic is based. The plea that the want of 'recognition' has hitherto prevented the expenditure of money in the establishment and equipment of a college or colleges does not seem to be in accord with facts as they are found in the United States."

"Dr Palmer makes a far-reaching remark. He says 'Dr Edwards told you that the secret of their legislative success lay in their publicity campaign, they educated the public mind to the acceptance of the chiropractic idea. The rest of us who are in contact with the situation realize that chiropractic education must come before chiropractic legislation'."

The above extracts are sufficient to indicate that chiropractic is a menace to public health, as it violates every basic principle on which preventive medicine is founded.

In the opposition to legalizing chiropractors it is essential to direct the attention of the public and the lawmakers to the reasons why such license should not be granted, and to present logical evidence in support of these reasons. General statements and personal opinion only, easily lend the impression that the issue is between the licensed physician and the unlicensed chiropractor, which is by no means the case. The State is not interested in the welfare of the doctors or in protecting them against elements which interfere with their work or income. The issue is between the people of the State and persons who desire liberty to heal the sick without having the fundamental knowledge to recognize disease, thereby establishing a menace to public health. It is the duty of the physician to direct attention to this and to prove the truth of his assertion.

## THE AMERICAN CONGRESS ON INTERNAL MEDICINE

The fifth annual session of the American Congress on Internal Medicine will be held at Baltimore, Md, February 21-26, 1921.

The activities of the Congress will be largely clinical Ward-walks, Laboratory Demonstrations and Group or Amphitheatre Clinics will be conducted daily by members of the medical faculties of the Johns Hopkins and the Maryland Universities.

Further information may be secured by addressing the Secretary-General, 1002 N Dearborn St, Chicago, Ill.

## Medical Society of the State of New York.

17 West 43rd Street New York.

February 15, 1921

The regular annual meeting of the Medical Society of the State of New York will be held on Tuesday May 3, 1921 23rd Regiment Armory, Brooklyn, N Y

J RICHARD KEVIN, M.D., President  
EDWARD LIVINGSTON HUNT M.D. Secretary

17 West 43rd Street New York

February 15 1921

The regular annual meeting of the House of Delegates of the Medical Society of the State of New York will be held on Monday \* May 2, 1921, in the Kings County Building Brooklyn N Y

J RICHARD KEVIN, M.D. President  
EDWARD LIVINGSTON HUNT M.D. Secretary

### 115th ANNUAL MEETING

Tuesday, May 3d 8 30 P M

Twenty third Regiment Armory Bedford Avenue Brooklyn, N Y

Calling the Society to order by the President  
Address of Welcome by the Chairman of the Committee on Arrangements, William Francis Campbell M.D.

Reading of the minutes of the 114th Annual Meeting by the Secretary

President's Address J Richard Kevin M.D., Brooklyn

### BANQUET

Wednesday Evening May 4th  
SCIENTIFIC PROGRAM

ARRANGED BY THE COMMITTEE ON SCIENTIFIC WORK

Samuel Lloyd M.D. Chairman New York City

Paul B Brooks M.D. Albany

Russell S Fowler, M.D. Brooklyn

Ledra Heazlit, M.D. Auburn

Michael Osnato M.D. New York City

Walter D Ludlum M.D., Brooklyn

John O Polak M.D. Brooklyn

Nelson G Russell M.D., Buffalo

Albert C Snell M.D. Rochester

### SECTION ON MEDICINE

Chairman Nelson G Russell M.D. Buffalo

Secretary, Herman O Mosenthal, M.D. New York City

Place of Meeting Twenty third Regiment Armory, Brooklyn

Tuesday May 3d 2 30 P M

Joint Meeting with Section on Public Health,  
Hygiene and Sanitation

"Studies on Experimental Measles" Francis G Blake M.D. Rockefeller Institute (by invitation)

"Group Consultation Clinic Experiment," Edmund C Boddy, M.D., Rochester

"The Abolition of Venereal Disease," George Walker, M.D. Baltimore, Md (by invitation)

"The Relation of the State Department of Health to the Medical Profession," Matthias Nicoll, Jr M.D., Albany

Wednesday, May 4th, 9 30 A M

Symposium on Diseases of the Intestine

Intestinal Tuberculosis Lawrason Brown M.D. and H L Sampson Saranac Lake

The Importance of the Medical History in the Diagnosis of Chronic Gastro Intestinal Disease, William Goldie, M.D., Toronto Canada (by invitation)

\*Time of meeting and street address will be given in official call

The Interpretation of the Signs and Symptoms of Chronic Gastro Intestinal Disease Fred Whitney Rolph, M.D. Toronto Canada (by invitation)  
Further Developments in Pneumoperitoneal X ray Diagnosis," (lantern slides), William H Stewart M.D., and Arthur Stein, M.D., New York City

Wednesday, May 4th 2 30 P M

Symposium on Hypertension

Nature of Hypertension' Henry A Christian M.D. Boston Mass (by invitation)

Symptoms of Hypertension' Alfred Stengel, M.D. Philadelphia Pa (by invitation)

Treatment of Hypertension' William D Alsever M.D. Syracuse

Discussion, Eli Moschowitz M.D., New York City  
Ernst P Boas M.D. New York City

Thursday, May 5th, 9 30 A M

Joint Meeting with Section on Surgery

Symposium on the Therapy of Arthritis

Foreign Proteins David Murry Cowie M.D. Ann Arbor Mich (by invitation)

'Dietetic Treatment of Arthritis with Special Relation to Maximum Fat Feeding,' Floyd R Wright, M.D. Clifton Springs

Treatment of Arthritis by Drugs, Samuel W Lambert M.D. New York City

Orthopaedic  
Discussion opened by R Garfield Snyder M.D., and John H Richards M.D. New York

Thursday May 5th, 2 30 P M

'Intermittent Spasm of the Renal Artery,' with report of two cases, Meyer A Rabinowitz M.D. Brooklyn

'Diagnosis of Myocardial Disease' Harold E B Pardee M.D. New York City

Points of Contact Between Some Surgical Conditions and Cardiac Disorders, Samuel A Levine M.D. Boston Mass (by invitation)

'Tuberculosis of the Pericardium' William W G MacLachlan, M.D. Pittsburgh, Pa (by invitation)

'Transient Myelosis in the Course of an Acute Infectious Disease Report of a Case' Simon R Blat teis, M.D., Brooklyn

### SECTION ON SURGERY

Chairman Ledra Heazlit M.D. Auburn

Secretary George W Cottis, M.D. Jamestown

Place of Meeting Twenty third Regiment Armory, Brooklyn

Tuesday, May 3d 2 30 P M

Tumors of the Kidney' Thomas F Laurie M.D. Syracuse

'Cholecystitis,' Marshall Clinton M.D. Buffalo

Discussion opened by Allen O Whipple M.D., New York City

"The Reflex Stomach from the Surgeon's View point George D Stewart M.D., New York City

Wednesday, May 4th, 9 30 A M

'The Interpretation of the History in Surgical Affections of the Right Upper Quadrant' Charles Gordon Heyd, M.D. New York City

Discussion opened by John F Erdmann M.D. New York City

Physiologic Factors Underlying Operations upon the Stomach and Duodenum' W Wayne Babcock M.D., Philadelphia (by invitation)

Discussion opened by William D Johnson, M.D., Batavia



Wednesday, May 4th, 2 30 P M

## Joint Meeting with Section on Neurology and Psychiatry

"The Accomplishments of Intracranial Surgery," Charles H. Frazier, M.D., Philadelphia (by invitation)  
 "Remarks on Spinal Cord Surgery," Charles A. Elsberg, M.D., New York City

"Cervical Ribs, with Special Reference to the Surgical Treatment," Alfred S. Taylor, M.D., New York City

"The Surgical Treatment of Brachial Plexus Injuries," A. W. Adson, M.D., Mayo Clinic, Rochester, Minn (by invitation)

Discussion opened by Alfred S. Taylor, M.D., New York City

"The Surgical Problem of Nerve Defects," Byron Stooker, M.D., New York City

Discussion by Martin B. Tinker, M.D., Ithaca

Thursday, May 5th, 9 30 A M

Joint Meeting with Section on Medicine  
Symposium on the Therapy of Arthritis

"Foreign Proteins" David Murray Cowie, M.D., Ann Arbor, Mich (by invitation)

"Dietetic Treatment of Arthritides with Special Relation to Maximum Fat Feeding," Floyd R. Wright, M.D., Clifton Springs, N. Y.

"Treatment of Arthritis by Drugs," Samuel W. Lambert, M.D., New York City  
 Orthopedic

Discussion opened by R. Garfield Snyder, M.D., and John H. Richards, M.D., New York City

Thursday, May 5th, 2 30 P M

"Synergistic Analgesia" James T. Gwathmey, M.D., and James Greenough, M.D., New York City

"Nitrogenized Ether Anesthesia," Adolph F. Erdmann, M.D., Brooklyn (by invitation)

"Anesthesia, Its Place in the Practice of Medicine," John J. Buettner, M.D., Syracuse

Discussion opened by Seth N. Thomas, M.D., Auburn

SECTION ON OBSTETRICS AND  
GYNECOLOGY

Chairman John O. Polak, M.D., Brooklyn  
 Secretary William T. Getman, M.D., Buffalo

Place of Meeting, Twenty-Third Regiment Armory, Brooklyn

Tuesday, May 3d, 2 30 P M

## Symposium on Operative Delivery vs Spontaneous Delivery

"Version" Irving W. Potter, M.D., Buffalo

"Bag vs Expectancy in Dry Labor," Franklin A. Dorman, M.D., New York City

"Cesarian Section, Indications and Contra-Indications," James K. Quigley, M.D., Rochester

"Obstetrical" Paul T. Harper, M.D., Albany  
 "Hydronephrosis as a Gynecological Problem with remarks concerning the Influence of Nephrectomy Upon a Subsequent Pregnancy," Arthur Morse, M.D., New Haven, Conn (by invitation)

Wednesday, May 4th, 9 30 A M

"The Acute Abdomen in Gynecology," George W. Crile, M.D., Cleveland, Ohio (by invitation)

"The Pathology of Uterine Bleeding in One Hundred Analyzed Cases," Herman Grad, M.D., New York

"The Irrigation Treatment of Pyelitis in Women" H. Dawson Furniss, M.D., New York City

"The Incidence of Embolism and Thrombophlebitis After Hysterectomy for Malignant Uteri," Lillian K. P. Farrar, M.D., New York City

Wednesday, May 4th, 2 30 P M

"Is the Form of the Pelvis a Factor in Cystocele," F. C. Goldsborough, M.D., Buffalo

Title to be announced, W. Mortimer Brown, M.D., Rochester

Title to be announced, George B. Broad, M.D., Syracuse

"Care of the Second Stage of Labor" Ross McPherson, M.D., New York City

Thursday, May 5th, 9 30 A M

"Radium in Gynecology and its Limitations," Floyd E. Keene, M.D., Philadelphia (by invitation)

Thursday, May 5th, 2 30 P M

"The Scope and Field of Office Treatment in Gynecology," Robert L. Dickinson, M.D., New York City

Title to be announced, James E. King, M.D., Buffalo

## SECTION ON EYE, EAR, NOSE and THROAT

Chairman, Albert C. Snell, M.D., Rochester, N. Y.

Secretary, Irving W. Voorhees, M.D., New York City

Place of Meeting, Twenty-Third Regiment Armory, Brooklyn

Tuesday, May 3d, 2 30 P M

## Clinics in New York and Brooklyn Hospitals

Manhattan Eye and Ear

New York Eye and Ear

Knapp Memorial

Brooklyn Eye and Ear

A complete list of operations and demonstrations will be given out at the morning sessions

Wednesday, May 4th, 9 30 A M

## Eye

"The Nerst Slit-Lamp, with Demonstrations" Edmund E. Blaauw, M.D., Buffalo

"The Economic Value of Social Service in the Care of the Eyes of Employees," George S. Derby, M.D., Boston, Mass (by invitation)

"Industrial Corneal Lesions and their Treatment," Arthur J. Bedell, M.D., Albany

"Clinical Notes on Endocrines in Eye Work," Percy Fridenberg, M.D., New York City

"A Few Remarks on the Diagnostic Value of Pupillary Symptoms in General Disease," Matthias L. Foster, M.D., New Rochelle

"Optic Atrophy in a Child Caused by Localized Meningitis Without Symptoms," H. Leland Fifield, M.D., Syracuse

Title to be Announced, Joseph Leo Behan, M.D., Brooklyn

Wednesday, May 4th, 2 30 P M

## Clinics in New York and Brooklyn Hospitals

Manhattan Eye and Ear

New York Eye and Ear

Knapp Memorial

Brooklyn Eye and Ear

A complete list of operations and demonstrations will be given out at the morning session

Thursday, May 5th, 9 30 A M

## Nose and Throat

"The Virulence of Streptococci Isolated from Material Expressed from the Tonsils," Mark J. Gottlieb, M.D., New York City

Discussion opened by Miss Aarlaug Unneberg, New York City (by invitation)

**Symposium on Tube Cases**

'The Most Interesting Tube Cases I have ever Had'  
Henry H Forbes, M D New York City Sidney Yan  
kauer, M D New York City Henry L Lynah M D  
New York City Charles J Imperatori M D, New  
York City Hubert Arrowsmith M D Brooklyn Rob  
ert L Moorhead M D Brooklyn Wolff Freudenthal  
M D New York City and one or two others, each  
paper to take ten minutes

**SECTION ON NEUROLOGY AND  
PSYCHIATRY**

Chairman Michael Osnato M D New York City  
Secretary S Philip Goodhart M D New York City

**Place of Meeting, Twenty Third Regiment Armory  
Brooklyn**

**Tuesday, May 3d 2 30 P M**

A Discussion of the Extra Pyramidal System and Its  
Clinical Manifestations' James Ramsay Hunt M D  
New York City

'The Importance of Psychic Factors in the Treat  
ment of Physical Diseases' Menas S Gregory M D,  
New York City

A Discussion of the Problems Presented in Per  
sonality Studies' Bernard Glueck M D New York  
City (by invitation)

Discussion by Sanger Brown M D New York City  
The Diagnosis of Brain Abscess of Otic Origin,'  
Foster Kennedy M D New York City

A Consideration of Pituitary Influence in Certain  
Pathological Conditions' Walter Timme M D New  
York City

**Wednesday, May 4th, 9 30 A M**

Some Problems in Forensic Medicine' Marcus B  
Heyman M D New York City

'The Neurological and Mental Aspects of an Epi  
demic of Cerebrospinal Meningitis' George A Blakes  
lee M D New York City

The Psychoneuroses in Industrial Life' Louis Cas  
major M D New York City

The Deleterious Effects of the Bromide Treatment  
in the Diseases of the Nervous System, Edward Liv  
ington Hunt M D New York City

Observations on the Diagnosis of Scrivania and Its  
New Methods of Treatment' William M Leszynsky  
M D New York City

**Wednesday May 4th 2 30 P M**

**Joint Meeting with Section on Surgery**

'The Accomplishments of Intracranial Surgery'  
Charles H Frazier M D Philadelphia (by invitation)

Remarks on Spinal Cord Surgery' Charles A Els  
berg M D New York City

'Cervical Ribs with Special Reference to the Sur  
gical Treatment' Alfred S Taylor M D New York  
City

The Surgical Treatment of Brachial Plexus Injur  
ies A W Ad on M D Mayo Clinic Rochester Minn  
(by invitation)

Discussion opened by Alfred S Taylor M D New  
York City

The Surgical Problem of Nerve Defects Byron  
Stookey M D New York City

Discussion by Martin B Tinker M D Ithaca

**Thursday May 5th, 9 30 A M**

'A Study of Motor Disturbances by Means of Mov  
ing Pictures,' S Philip Goodhart, M D, and Frederick  
Gilney M D New York City

Title to be announced later George H Kirby  
M D New York City

The Influence of Radium on Certain Types of  
Pathological Nerve Tissues Isaac Levin M D New  
York City and Isidor Abrahamson M D, New York  
City

**Thursday May 5th 2 30 P M**

Mental Therapy in Epilepsy' L Pierce Clark M D  
New York City

Neurotic Forms of Homosexuality' Clarence P  
Oberndorf M D New York City

Epileptiform Manifestations in Endocrinous Dis  
orders Sylvester R Leahy M D New York City

The Mechanism of Hallucinations, Morton Prince  
M D Boston, Mass, (by invitation)

The Occurrence of Deformities of the Feet in Cer  
tain Diseases of the Nervous System' Walter M  
Kraus M D New York City

**SECTION ON PEDIATRICS**

Chairman Walter D Ludlum, M D Brooklyn  
Secretary Arthur W Benson M D Troy N Y

**Place of Meeting, Twenty Third Regiment Armory  
Brooklyn**

**Tuesday, May 3d 2 30 P M**

Feeding Sick Children' Walter D Ludlum M D  
Brooklyn

'The Same Treatment of Otitis Media' Sidney V  
Haas M D New York City

Discussion opened by Linnaeus E LaFetra M D  
and Samuel J Kopetzky M D of New York City

The Place of Disorders of Conduct in Pediatrics'  
Ira S Wile M D New York City

Discussion opened by Bernard Glueck M D New  
York City (by invitation)

The Nursing Mother A Study in Lactation' Frank  
H Richardson M D Brooklyn

Discussion opened by Leo J J Commiskey M D

A Study of the Results of Different Methods of  
Treatment of Congenital Syphilis' Thurman B Givan  
M D Brooklyn

**Wednesday, May 4th, 9 30 A M**

The Pediatricist in the Maternity Hospital' Royal S  
Haynes M D New York City

Discussion opened by Roger H Dennett M D New  
York City

A Practical Consideration of the Intestinal Flora  
DeWitt H Sherman M D Buffalo

Discussion opened by T Wood Clarke M D

Total Urinary Acidity Estimations in Children' H  
L K Shaw M D and Frank J Williams M D Albany

Discussion opened by DeWitt H Sherman M D  
Buffalo and Philip Potter M D Syracuse

A Ray Study of Cells Turcica in Children with  
Lantern Slides' Murray B Gordon M D and Alfred  
Bell M D Brooklyn

Discussion opened by Walter Timme M D

'Anthrax in Infancy and Childhood,' George Dow  
Scott M D New York City

Discussion by Herman Gerber BS (by invitation)  
and William Jacobson M D New York City

Wednesday, May 4th 2 00 P M

## Pediatric Clinics in Brooklyn Hospitals

2 00 to 3 00 P M—St Christopher's Hospital, by John W Parrish, M D, and his assistants

3 30 to 4 30 P M—Long Island College Hospital, by Carl H Laws, M D

4 30 to 5 00 P M—Inspection of Long Island College Roof Wards, "Treatment of Tuberculous Bones and Joints, with Demonstration of Cases," by John D Rushmore, M D

Thursday, May 5th, 9 30 A M

## Joint Meeting with Section on Public Health, Hygiene, and Sanitation

"The Limitations of Milk in the Diet of the Older Child," Frank vander Bogert, M D, Schenectady

Discussion opened by Charles Gilmore Kerley, M D

"The Official Relation of the Medical Society to Child Welfare Work," Louis C Ager, M D, Brooklyn

Discussion opened by William Nallen, Ph D, New York City (by invitation)

"Care and Treatment of the Undernourished Child," William H Donnelly, M D, Brooklyn

Discussion opened by Adolph G DeSanctis, M D

"Children's Health Consultations, Their Purpose and Value," M Edgar Rose, M D, N Y State Department of Health

Discussion opened by Dr Edith M Buer, formerly Superintendent Child Hygiene Center, State Department of Health (by invitation)

Thursday, May 5th, 2 P M

## Pediatric Clinics in Brooklyn Hospitals

2 00 to 3 00 P M—Kings County Hospital, George F Little, M D, and Walter D Ludlum, M D

3 30 to 4 30 P M—Kingston Avenue Hospital, "Varieties and Complications Diphtheria and Measles"

## SECTION ON PUBLIC HEALTH, HYGIENE AND SANITATION

Chairman, Paul B Brooks, M D, Albany

Secretary, Arthur D Jaques, M D, Lynbrook, N Y

Place of Meeting, Twenty-Third Regiment Armory, Brooklyn

Tuesday, May 3d, 2 30 P M

## Joint Meeting with Section on Medicine

"Studies on Experimental Measles," Francis G Blake, M D, Rockefeller Institute, New York City (by invitation)

"The Group Consultation Clinic Experiment," Edmund C Boddy, M D, Rochester

"The Abolition of Venereal Disease," George Walker, M D, Baltimore, Md (by invitation)

"The Relation of the State Department of Health to the Medical Profession," Matthias Nicoll, Jr, M D, Albany

Wednesday, May 4th, 9 30 A M

## Special Session for Health Officers and Medical School Inspectors

"Spinal Puncture in Diagnosis and Treatment," William E Youland, M D, New York City (by invitation)

"The Role of the Health Officer in the Prevention and Control of Communicable Diseases," Edward S Godfrey, Jr, M D, Albany (by invitation)

"Procedure in Dealing with Nuisances," Mr Theodore Horton, Albany (by invitation)

"Co-operation of School and Health Authorities," John E Burke, M D, Schenectady

Discussion opened by John H Collins, M D, Schenectady

"Efficiency in Corrective Treatment in School Work," James W Dimon, M D, Utica

Round Table Conference, William A Howe, M D, State Medical Inspector of Schools, presiding, will be held in separate room at 3 30 P M

Wednesday, May 4th, 2 30 P M

## Special Session for Laboratory Workers

"A Comparative Study of Diagnoses made in Various Laboratories in New York State," Ruth Gilbert, Albany (by invitation)

"Pneumococcus Infection and Immunity," Oswald T Avery, M D, New York City, (by invitation)

"Standardization of Wassermann Reaction," John A Kolmer, M D, Philadelphia, Pa, (by invitation)

"Serological Studies in Tuberculosis," S A Petroff, M D, and George Orristein, M D, Trudeau, (by invitation)

"Co-operation Between the Central State Laboratory and the Local Municipal and County Laboratories," Augustus B Wadsworth, M D, Albany

Thursday, May 5th, 9 30 A M

## Joint Meeting with Pediatric Section

"The Limitations of Milk in the Diet of the Older Child," Frank vander Bogert, M D, Schenectady

Discussion opened by Charles Gilmore Kerley, M D, New York City

"The Official Relation of the Medical Society to Child Welfare Work," Louis C Ager, M D, Brooklyn

Discussion opened by William Nallen, Ph D, New York City (by invitation)

"Care and Treatment of the Undernourished Child," William H Donnelly, M D, Brooklyn

Discussion opened by Adolph G DeSanctis, M D, New York City

"Children's Health Consultations, Their Purpose and Value," M Edgar Rose, M D, N Y State Department of Health

Discussion opened by Dr Edith M Buer, formerly Superintendent Child Hygiene Center, State Department of Health (by invitation)

## Special Committee on Public Health and Legislation of the Greater City of New York

At a stated meeting of the Special Committee on Public Health and Legislation of the Greater City of New York, of the Medical Society of the State of New York, held on January 31, 1921, the following resolutions were passed

WHEREAS There is a growing scarcity of physicians in the rural communities of the State, and

WHEREAS It appears to be the duty of the State to offer inducements for well equipped and progressive young graduates in medicine to locate in said rural communities

Therefore, Be It Resolved That a bill be presented to the Legislature now in session incorporating the following general plan

The State to establish a bonus of \$900 a year for three years to induce practitioners to locate and practice in rural communities the bonus to be limited to 100 physicians to be appointed each year, by either the State Department of Education or the State Department of Health, the assignment to the most needy localities in the State to be determined by either of said bodies stipulation to be made that these physicians obligate themselves to continue practice in said rural communities for at least three years after the bonus is paid by the State This would insure each physician six years of practice for rural service guaranteed by the State

Three hundred new physicians would thus be placed in rural communities in three years, an average of more than five physicians to every County in the State exclusive of Greater New York

The total expense to the State of such a plan would be as follows First year, \$90,000, second year, \$180,000 third year \$270,000

The plan is simple and should prove attractive especially to young practitioners It would meet within a few years the urgent demands of rural communities for better medical service Many of the young practitioners would become permanently located in the communities selected for them by the State

Be It Further Resolved That these resolutions be forwarded to the counsel of the Medical Society of the State of New York to the Chairman of the Committee on Legislation and to the secretaries of county societies

EDWIN HOWE FISKE Chairman  
HARRIS A HOUGHTON Secretary

## COMMITTEE ON PRIZE ESSAYS

The Committee on Prize Essays wishes to once more draw the attention of the members of the Society to the Merritt H Cash prize of \$100.00 which will be awarded at the next Annual Meeting of the State Society to the author of the best original essay on some subject relating to medicine or surgery

And to the Lucien Howe prize of \$100.00 which will be given for the best original contribution on some branch of surgery preferably ophthalmology

Essays must be in the hands of the Chairman of the Committee Dr A Vander Veer 28 Eagle Street Albany not later than April 1 1921

## County Societies

### MEDICAL SOCIETY OF THE COUNTY OF ERIE ANNUAL MEETING, BUFFALO N Y MONDAY, DECEMBER 20 1920

The meeting was called to order by the President at 9 P M in the Buffalo Medical College

Seven new members were elected and one member reinstated

Dr Bonnar Chairman Board of Censors reported on the activities of the Board during the past year and stated that over \$300 had been secured in fines from persons who had been charged with malpractice and convicted in the Courts

Dr Walsh, Chairman Committee on Economics, reported on the work of the committee.

Moved that the report be received and the recommendations adopted Seconded and carried

Dr Otto reported for the Milk Commission and stated that milk conditions in Erie County and especially in Buffalo were extremely favorable The report was received and placed on file

Dr Cowper Chairman Committee on Legislation, reported that as most of the Committee's activities were cared for as they occurred they had been brought before the Society at previous meetings

The President Dr Lothrop gave his annual address, in which he called attention to the coming centenary anniversary of the Society and asked the members to assist in making the meeting a complete success He also called attention to the fact that the annual dues were not only far too small to extend the activities of the Society, but were also inadequate to carry on its necessary work and regular duties

Dr Lothrop was given a vote of thanks for his address

Dr Trick, president of the Eighth District Branch, and by virtue of his office a member of the Council of the State Society, was called upon to explain the conditions under which the malpractice defense is now being cared for by the State Society Dr Trick went into details which brought about the change of counsel and also covered the results as far as known at the present time

Dr Otto Chairman of the Board of Tellers reported the election of the following officers for the ensuing year President Arthur G Bennett 1st Vice President DeWitt H Sherman 2nd Vice President Thomas J Walsh Secretary I Rankin C Gram Treasurer Albert T Lytle, Censors John D Bonnar Archibald D Carpenter Francis E Fronczak Frank A Viente and Charles W Bethune Delegates to State Society Drs Archibald D Carpenter, Francis E Fronczak, F Park Lewis, Charles G Stockton and Grover W Wende, Chairmen of Committees Legislation, Harvey R Gaylord Public Health, Charles A Bentz, Membership Jesse N Roe, Economics A H Aaron

Dr Lothrop then introduced the incoming President, Dr Bennett who complimented Dr Lothrop on the success of his administration during the past year and thanked the Society for the honor conferred on him by his election

## QUEENS NASSAU MEDICAL SOCIETY

ANNUAL MEETING JAMAICA N Y  
FRIDAY DECEMBER 17, 1920

The meeting which was called to order in the Surrogate's Court was the last meeting of the joint Society, steps having been taken to organize the Nassau County members into the Medical Society of the County of Nassau and to change the name of the Society back to its original name The Medical Society of the County of Queens

The Committee Minora of the Society was instructed to apply to the court in proper form for authority to so change the name as its membership will be composed of residents of Queens County only

The following officers were elected for the ensuing year President, Thomas C Chalmers, Vice-President, Charles B Story, Secretary-Treasurer, L Howard Moss, Censors, Robert F Macfarlane, Henry C Courten, Millard M Slocum, Joseph S Thomas, Frederick J Schwabart, Historian, John D MacPherson, Delegates to State Society Thomas C Chalmers, Martin V Kittell, Frank P Hatfield

Four new members were elected

A worthy and appropriate tribute to the memory of Dr William J Burnett, a long-time member of the Society whose death occurred at Cedarhurst on December 8th was read by Dr Walter G Frey, a life-long friend and associate of the deceased

Notice was given by Dr Chalmers that certain amendments to the By-Laws, made necessary by the change in name and territory of the Society, would be considered and acted upon at the first meeting in February

The President's address consisted of the meager facts known and available, concerning the history of the Society which was organized in 1806, as the Medical Society of the County of Queens, re-organized several times, subsequent to that date, until in 1899, when the eastern portion of Queens County became Nassau County, it became the Queens-Nassau Medical Society, with a present membership of about 200

#### MEDICAL SOCIETY OF CLINTON COUNTY

ANNUAL MEETING, PLATTSBURG, N Y

THURSDAY, NOVEMBER 18, 1920

The President, Dr deGrandpre, called the business session to order at 1 30 P M in the Elks' Club

On motion duly seconded and carried the Secretary cast one ballot for the following officers, who were declared elected for the ensuing year President, John R. Ross, Vice-President, William H Ladue, Secretary, Leo F Schiff, Treasurer, Jefferson G McKinney, Delegate to State Society, Arthur A deGrandpre, Alternate Edwin W Sartwell

The report of the Treasurer showed a deficit for the first time in the history of the Society

Dr T Avery Rogers reported for the Committee on County Laboratory to the effect that no interest in the project could be aroused by him, and that he had not pushed the matter

Motion by Dr Schiff and seconded by Dr Ross that the Committee Minors be given power to levy a per capita tax of \$200 to cover the amount due to the State Treasurer January 1, 1921 Carried

A proposal to amend the By-Laws so as to make the annual per capita assessment \$200 instead of \$100 was placed on the table for action at the next meeting

The County Laboratory proposition was discussed by Drs Sears Ross and Rogers

On motion a Committee consisting of Drs Rogers, Ladue and Schiff was named to consider the proposed Health Centre Bill, the Chairman to act as a Delegate to any conference Dr Biggs might call for its consideration

The President appointed as a new Laboratory Committee Drs Schiff Rogers and Buck

#### SCIENTIFIC PROGRAM

Medical Inspection of School Children, William A Howe, MD Albany

Mental Training of School Children Blake R Webster, MD Danmora

Health Centre Legislation Frederick W Sears MD, Syracuse

Sciatica from an Orthopedic Standpoint, John A Nutter MD, Montreal Canada

Alpecia Areata, Myron D Lipes, MD, Danmora G

#### WAYNE COUNTY MEDICAL SOCIETY

ANNUAL MEETING, LYONS N Y

TUESDAY, DECEMBER 14, 1920

The meeting was called to order by the President at 11 20 A M, with an attendance of 20 members and 4 visitors

The minutes of the preceding meeting were read and approved as read

The following officers were elected for the ensuing year President, Charles H Bennett, Vice-President, Robert S Carr, Secretary-Treasurer, Lucius H Smith, Censors, Herman L Chase, Myron E Carmer, Dwight F Johnson, Delegate to State Society, Dwight F Johnson, Ernest E Esley

Dr Sheldon announced that the Supervisors would not pay for lunacy examinations but that such bills must be presented to the committing judge, who would give an order on the County Treasurer

The Secretary presented the following

*Be It Resolved*, That the By-Laws of the Wayne County Medical Society (Chap 10, Sec 1) be amended to read

Each member shall pay annually the sum of \$200 This was referred to the next annual meeting

Moved and carried that the Society go on record in favor of the employment of a tuberculosis nurse by the Board of Supervisors and that a committee be appointed to co-operate with the Supervisors The President appointed Drs Simpson, Sheldon and M E Carmer

The President's address was a resume of the scientific work presented to the Society during the eight years he has filled the chair He was emphatic in his belief that members who were not present at the meetings were the real losers, and advocated yearly attendance on good clinics not only for personal gain but also because it made the Society meetings more interesting and instructive He reminded the members that the menace from irregulars and quacks as well as the menace from adverse legislation could only be overcome by organization and energetic co-operation

After a recess for luncheon, the scientific session was resumed

"The Future Physician," J Richard Kevin MD, President, Medical Society of the State of New York

"Legislative Trend in Modern Medicine," Walter H Kidder, MD Oswego

"Bronchial Asthma," Edward G Whipple, MD, Rochester

"Acute Infectious Osteomyelitis," John F Myers, MD, Sedus

Because of the late hour a paper by Emory W Carr, MD, was reserved for a future meeting

#### DUTCHESS-PUTNAM MEDICAL SOCIETY

ANNUAL MEETING, Poughkeepsie, N Y

WEDNESDAY, JANUARY 12, 1921

The meeting was called to order at 4 00 P M by the President, Dr LeRoy, in the Medical Library Rooms, with 29 members present Dr Body of the State Department of Health was also present

The minutes of the previous meeting were read and accepted as read

The following officers were elected for the ensuing year President, Nelson Borst, Vice-President, Joseph E Vigeant, Secretary-Treasurer, Howard P Carpenter, Asso Secretary, Aaron Sobel, Delegates to State Society, John A Card, Robert W Andrews, Alternates, Robert H Breed Aaron Sobel, Censors, Alva L Peckham, Coryell Clark and Marcus M Lown, Counsel, V L Spratt

Four new members were elected, resignations were received from Drs William J Delaney and William C Porter Drs Robert B Lamb and B R Webster were transferred to other county societies

The Treasurer's report was read accepted and ordered on file

It was regularly voted that the amendment to the By-Laws repealing Section 6 of Chapter 7 be laid on the table

Drs B McC Cookingham, John A Card and Marcus M Lown were appointed a committee to formulate suitable resolutions regarding the death of Dr J F Goodell of Rhinebeck and to report at the next meeting

Voted that an assessment of \$2.00 be levied to meet the Treasurer's deficit

Voted that the President and Secretary formulate a letter commending Governor Miller on his intentions as expressed in his annual message in regard to his opposition to Compulsory Health Insurance, the State Narcotic Law the Health Centre Bill and the Social Welfare Bill

The following resolution was adopted

Resolved That the Dutchess Putnam Medical Society endorse the work of the League of the Medical and Allied Professions and support them in attendance at its meetings

The following amendment was offered to the By-Laws to appear in writing at the April meeting

Chapter VIII Section 1 One delegate and one alternate for each assembly district in the two Counties shall be elected at the annual meeting for a term of three years to represent the Society in the House of Delegates of the Medical Society of the State of New York (at least one of these delegates shall be a resident of Putnam County)

Section 2 The Delegates and alternates shall be elected by ballot and the same by laws shall apply as in the election of officers

Section 3 At the election of officers held in the year 1923 one delegate and alternate shall be elected for one year and one delegate and alternate shall be elected for three years

Quotation marks (new)  
Parentheses ( ) (omitted)

Dr Card spoke on the proposed addition at Vassar Hospital and asked if it was the consensus of opinion that this project would be supported by the medical men of Dutchess County Discussion by Drs Wilson Sadler and Harrington but no definite action was taken as it was considered a matter for the individual rather than the Society as a whole to decide

#### SCIENTIFIC SESSION

Aid to the Injured Archibald W Thomson, M.D. Poughkeepsie

Report of Meeting of American Bacteriological Society Raymond Sanderson, M.D., Poughkeepsie

The Medical and Allied Professions, Stephen Palmer M.D., Poughkeepsie

The meeting adjourned for refreshments at 6:15

#### TOMPKINS COUNTY MEDICAL SOCIETY

REGULAR MEETING ITHACA N Y

TUESDAY JANUARY 18 1921

The meeting was called to order in the Court House The minutes of the December meeting of the Committee were read and approved

Dr Edward M Bull announced the 1921 Essay Committee for the following meetings January 1 W Brewer, February Annual banquet Luzerne Coville I M Unger Estlier E Parker H E Merriam and Arthur White March R M Vose H B Denniston and

Minor McDaniels, April H G Bull C F Denman and R H Fisher May, Homer Genung G M Gilchrist and Keith Sears June no appointments made October, J S Kirkendall Roscoe Wilson and H J Wilson November Martin B Tinker F J McCormick and W B Holton December Prof J S Shearer

The President appointed the following committees Legislation, Luzerne Coville, Wilber G Fish George M Gilchrist and Eugene Baker Public Health Committee Harry H Crum Homer Genung Willets Wilson and J Weslev Judd

A communication was read from the Ithaca Tuberculosis Association thanking the Society for their gift of \$5.00

A communication was read from the Bronx County Medical Society with relation to certain resolutions passed by that Society pertaining to legislative matters

The Legislative Committee to whom this communication was referred recommended that the resolution adopted by the Bronx County Society be approved and offered the following resolutions

Resolved 1st—That the Tompkins County Medical Society is opposed to any Chiropractic Bills

2nd—That the Tompkins County Medical Society is in favor of and hereby endorses the resolutions passed by the Bronx County Medical Society with reference to the amendments to the Workmen's Compensation Law

3rd—That a copy of these resolutions be sent to the Bronx County Medical Society to Dr James F Rooney of Albany and to our Representative in the State Legislature

All of which upon vote were duly adopted

The President announced that the Scientific Session would consist of case reports the first of which were by Dr Luzerne Coville on "What is being done in the County with Reference to Tuberculosis" He stated that the work centered at the Welfare building on East Seneca Street where clinics are held twice each week He told of the establishment in 1913 of the County Tuberculosis Hospital which has 28 beds, nearly always filled and of the establishment in 1914 in this County of the second Preventorium in the United States an incorporated and private institution The plant has cost about \$8,000 and cares for 23 sub standard children from 6 to 14 years of age and about equally divided as to sex It is planned to increase the capacity to 40 as soon as possible

Dr Martin B Tinker presented four case reports Two of gallstones and two of parotid tumors These were reported in detail and were of much interest

Dr Henry E Merriam presented a report of a very complicated case of lung trouble This was also presented in much detail and was listened to with great interest

#### THE MEDICAL SOCIETY OF THE COUNTY OF ORANGE

ANNUAL MEETING, GOSHEN N Y  
TUESDAY, DECEMBER 7, 1920

At the Annual Meeting of the Society the following officers were elected for 1921

President Milton A McQuade M.D. Newburgh Vice President Albert W Preston M.D. Middletown Secretary-Treasurer Hilton J Shelley M.D. Middletown, Censors Charles N Skinner M.D. William H Snyder M.D. Moses A Stivers M.D. Delegates to State Society William H Snyder M.D. Burke C Hamilton M.D. Alternates Henry Lyle Winter, M.D. Henry B Swartwout M.D.

The Society went on record as being opposed to the State Bill and also as being opposed to the proposed annual registration of physicians

fourth thoracic (a morphologic level) "The lower portion of the body may now be discarded," page 239). Neck, head, encephalon, eye and ear, nose, and a brief notice of the teeth, with their summary extraction, bring the work to a close after a discussion of the facial nerve and the temporal bone.

The index of some nine hundred structures completes this handbook for an anatomical laboratory in 356 pages. It is well bound and clearly printed. Text-book it is not. It would plainly direct any student to the dissection of an entire body. T H EVANS

**ALTITUDE AND HEALTH** By F F ROGET, a "Privat-Docent" Professor in the University of Geneva. Published by E P Dutton & Co, New York. Price, \$5 00

This book, as the author states, is compiled from three public lectures given during the spring of 1914, before the Royal Society of Medicine, London, England. The contents is divided into three parts, viz—Part I, Climate—Alpine and Northern. Part II, The Arrat Altitudes. Part III, Sunlight and Sun Heat.

Part I Is devoted to a general discussion of the physical properties of the earth, as for instance, the flattening of the earth as we approach the poles, there being twenty miles less in diameter at the poles than at the equator, the distribution of mountains and valleys, and especially the effect of cold, all of which have a definite bearing upon the body physio-chemistry. The Alpine climate, illustrating altitudes, he says possesses both good and bad potentialities. Altitude and cold in general tends to develop robustness. That it is a historic fact that Northerners are, for energy, the superiors of the Southerners, while the same law holds good as to mountaineers versus lowlanders—at anyrate in what concerns military superiority.

Part II Takes up more especially changes in body chemistry, of individuals living under these different physical conditions. Reports of experiments made on animals and human subjects residing for longer and shorter periods are interesting and instructive. The composition of the air, especially, the oxygen content, the freedom from dust and micro-organisms, the diminished humidity and the coolness of the air, at altitudes are generally all beneficial in effect. He takes up specifically, the effect on the blood content, muscular effort and on fatigue.

Part III Takes up the curative possibilities which may be derived from altitude and climate, discussed in Parts I and II. Considerable stress is placed upon direct sunlight cold air, freedom from dust and micro-organisms that exist at moderate and high altitudes as a curative agent in disease. The ascribed curative properties of light are given as heat, light and chemical rays, all of which probably have some effect on modifying the physio-chemical changes going on during life. Surgical tuberculous lesions, less so in medical, are said to be prophylactic, palliative or in some instances actually cured. To sum up as the author states, the therapeutic action of sunlight takes two directions, which converge toward one and the same end, the destruction of pathologic germs, the general stimulation of the human organism.

This book is well worth reading and broadens one's views as to the therapeutics of altitude and climate.

RAYMOND CLARK

**GEORGE MILLER STERNBERG** A Biography by his wife, MARTHA L STERNBERG. Published by the American Medical Association, Chicago, Ill., 1920.

This interesting biography of General Sternberg is a credit to the publishers, in point of excellence of paper, typography and the general arrangement of the book, facts which add to the pleasure of reading it.

Having known both General and Mrs. Sternberg, makes it interesting for us to review this book, as its pages bring vividly to mind many incidents of the past, especially in connection with the Hoagland Laboratory

of Brooklyn and the scientific work done there by the General as its Director. Those who knew him there can vouch for the truth of his biographer's claim, that he possessed, to a remarkable degree, the faculty of inspiring younger men to intensive efforts in scientific investigation.

In the twenty chapters devoted to her husband's career, Mrs. Sternberg portrays a well spent life in an attractive, conversational style, which lends charm to the book and is an incentive to those who may read it to higher endeavor, in the face of unusual difficulties, on a plane of high ideals.

For those who love adventure, the book is full of reminiscences of early army life. It also marks important advances in army hygiene and sanitation, reviews the classical work on yellow fever, done by the Havana Commission, created by the first U S National Board of Health in 1875, and establishes facts in the higher development of the Surgeon General's Office, as well as the regeneration of the Army Medical School which was placed on its present basis of efficiency during Steinberg's term as Surgeon General.

It is indeed a most readable volume, and the writer is to be congratulated upon her success in giving to his friends and others of literary taste an opportunity of knowing the real "George M. Sternberg."

J M VAN COTT

**THE MEDICAL CLINICS OF NORTH AMERICA** Published Bi-Monthly by W B Saunders Company, Philadelphia and London. Price per year \$12 00. Vol 3, No 5, March, 1920 (Philadelphia Number). Vol 3, No 6, May, 1920 (Chicago Number). Vol 4, No 1, July, 1920 (New York Number).

The three numbers reviewed—March, May and July, 1920—keep up the reputation of their predecessors. They contain articles on a wide range of subjects by men eminent in their respective cities, Philadelphia, Chicago, New York. There are many articles of special interest to the Pediatrician as well as to the physician specializing as an Internist among adults, but the real value of such collections of clinical teaching is to the general practitioner, who wishes to go over cases with men able to devote more intensive study to their work than he is, for this purpose these presentations of cases with enough of Pathology to explain the case in life, with living pathology in reports of examinations of fluids, blood and so on, serve as a very fair substitute for the more graphic demonstration on the living subject. As with all collections, the various articles are not entirely uniform but the matter fully justifies the existence of this kind of work.

It would be fruitless to give an index of the articles, the following subjects and authors, one from each number, merely illustrate the variety and scope. Kidney Function, by Mosenthal, Premature Infants, by Hess, Treatment of Valvular Heart Disease before Failure of Compensation, by Stengel.

**LABORATORY MANUAL OF THE TECHNIC OF BASAL METABOLIC RATE DETERMINATIONS** By WALTER M BOOTHBY and IRENE SANDIFORD, Ph D. Section on Clinical Metabolism. Mayo Clinic, Rochester, Minn., and Mayo Foundation, University Minnesota. Octavo, 117 pages, 11 Tables, Charts of explanation. Philadelphia and London. W B Saunders Co, 1920. Cloth, \$5 00 net.

This little book of 117 pages affords a very practical manual for the technic of basal metabolic rate of determination. A preliminary section gives a brief history of the development of direct and indirect calorimetry. There follow explicit directions for the care and use of the gasometer and Haldane's gas analysis apparatus. An appendix contains tables for the rapid corrections for barometric pressure, temperature and aqueous vapor and DuBois "Height-Weight Chart" for determining the surface area from the weight and height. The bibliography contains 78 references. T H

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL 21 No 3

NEW YORK N Y

MARCH, 1921

## A TYPE OF CYSTIC KIDNEY AMENABLE TO SURGICAL INTERVENTION \*

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**T**HE title of this paper originally referred only to large single or multiple cysts of the kidney. However, as the writer has recently operated upon a case of polycystic kidney presenting definite indications for surgery, it seemed wise to enlarge its scope, and include this type as well. Cystic disease of the kidney is rare, therefore the opportunity to study three patients at operation awakened the writer's interest in the subject.

In reviewing the literature it became apparent that it would be impossible to adequately cover so large a subject in the time allotted, therefore it seemed best to include in this communication only the briefest review of kidney cysts, together with the description of each case, leaving the details for a later publication.

Cysts may be classified as follows

### True Cysts

#### Retention

- (a) Pancreas
- (b) Kidney
- (c) Endothelial

#### Congenital

- (a) Dermoid
- (b) Misplaced rests
- (c) Developmental anomalies

#### Follicular

- (a) Ovaries
- (b) Thyroid

#### Neoplastic

- (a) Cystadenomas

#### Pseudocysts

- (1) Cystic degeneration of tumors
- (2) Degeneration of clots, etc.

#### Parasitic cysts Eschinococcus etc.

Kidney cysts may be classified as follows

- (1) Polycystic kidney
  - (a) Congenital
  - (b) Adult
- (2) Both one and the same disease
- (3) Large single or multiple cysts of the kidney
- (4) Multiple small cysts (associated with chronic interstitial nephritis)
- (5) Dermoid (related to the teratoma)
- (6) Inflammatory—as hydatid echinococcus or tuberculosis etc.

Only the first two groups are within the scope of this paper.

Polycystic kidney may be described as a progressive destruction of the renal parenchyma either by pressure atrophy or its conversion into cysts.

**Etiology**—Three theories have been advanced to explain the origin of this disease.

First—The inflammatory, especially championed by Virchow, but now practically abandoned.<sup>1</sup>

Second—The congenital mal-development which postulates the lack of union between the anlage of the secreting and collecting structures of the kidney with the formation of cysts through epithelial proliferation of the partly developed tubules, and glomeruli which have no outlet or blood vessels, and lie scattered about in the renal parenchyma. This is the most accepted theory to-day.<sup>2,3</sup>

Third—The tumor theory, which considers the epithelial proliferation as true tumors and classifies them as cyst adenoma.<sup>4</sup>

Finally, there are a number of observers who take a mid position between the mal-development and tumor theories. The observers declare that certain specimens show clearly the former predominating (mal-development), in others the latter (tumor), while in another group both elements are so blended that it is impossible to definitely classify them in either.

**Pathology**—The gross appearance of polycystic kidney shows a raised, uneven surface due to the various sized cysts, which gives the impression that the organ contains no parenchyma at all, so closely are they packed together. Early the kidney is not enlarged, but as the disease progresses the increase of growth may be so great that nearly the entire abdominal cavity is occupied, and several cases are recorded in the literature where parturition was impossible until the fetal abdomen had been opened and some of the contents evacuated.

The color of the kidney is usually dark blue but varies, depending upon the cyst's contents, which may be clear, serous, hemorrhagic or turbid, and may be of watery or solid consistency. Upon section, the same cystic condition observed on the cortex is found to exist throughout the specimen. Microscopically the cysts may communicate with one another, but rarely with the



pelvis, or lie separated from each other by normal renal parenchyma, or only a thin, fibrous wall. The renal parenchyma in the region of the cyst usually shows pressure atrophy. The lining of the cyst consists of epithelium, which may be columnar or flattened, the latter being the more common, due to the size and degree of pressure within the cyst. In certain areas there are definite epithelial proliferations, which have been considered by some as actual tumor formations. Berner has shown these cysts may occupy the site of the glomeruli or any portion of the tubule, and appear to be true secretory cysts.

Cystic condition is found associated in 28 per cent of cases in the liver, which many consider to be part and parcel of the same disease. Others dispute this.

Polycystic kidney is for all practical purposes to be considered a bilateral disease. It is true that in one kidney the disease is much more advanced than in the other, and early the less diseased kidney may show no evidence of pathology upon palpation. Later, however, this becomes apparent. Cases have been found at autopsy in which only one kidney was affected, but these are so few that for all clinical purposes they may be disregarded.

Nephrectomy, therefore, is never to be performed, except in the face of complications which threaten to speedily terminate the life of the individual, and provided, of course, that the other kidney is competent. The surgeon must then decide, in a given case, knowing that the other kidney will eventually become polycystic, whether he can prolong the patient's life by performing a nephrectomy.

The cases reported show the sexes about equally divided.

The majority of cases show the disease to occur either during intrauterine life or a few months after birth, or after the 40th year, although cases are reported during the intermediary period.

Heredity seems to play a striking rôle. In one instance, a woman giving birth to seven children, four were known to die of the disease at birth, the fifth fetus was lost, and of the two living children out of the seven, one was suspected of having the disease, leaving only one healthy child.<sup>6</sup> Other observers have reported nearly as striking instances, in one case the disease having reappeared in three generations.<sup>7</sup>

Other congenital defects are not uncommon in this disease, as encephalocele, hydrocephalus, cleft palate, imperforate anus, polydactylism, absence of kidney and ureter, absence of urethra, bicornate uterus, double vagina, etc.

The symptoms of polycystic kidney may be divided into two groups.

First. Those of the period of renal compensation, and

Second. Those of the period of renal decompensation.

Early, the symptoms in the first group may be entirely absent, or the disease may progress to a marked degree until the period of decompensation is reached without the patient being aware that he is suffering from a serious illness. Ordinarily pain in the kidney region on the side most affected is first complained of. The pain is usually of a dull, aching character, although acute exacerbations may lead to a tentative diagnosis of calculus or to ptosis with ureteral kinking. The pain is usually increased upon exercise, and is relieved by lying down. Hematuria is also a common symptom, and may occur independently of pain. This may strongly suggest tumor, especially hypernephroma.

Upon physical examination in a well marked case the kidney is found to be enlarged and the surface uneven and roughened. Sometimes the organ is quite movable, at others relatively fixed. The opposite kidney may show nothing upon palpation, or the same evidences but in a lesser degree.

The renal function will depend upon the destruction of the kidney parenchyma, and it is surprising to note at operation how very advanced the disease may be when previous to operation so excellent a functional test has been obtained.

Certain complications are frequent, especially infection, calculus, tuberculosis, and even neoplasm, while hydro or pyelonephrosis may result due to the kinking of the ureter brought about by the ptosis of the greatly enlarged kidney.

A hydronephrosis may rarely be simulated by the rupture of one of the larger cysts into the kidney pelvis resulting in a sudden diminution in the size of the kidney swelling and the passage of a large amount of urine. Naturally, the symptoms of the above mentioned complications when present, added to those of polycystic kidney, render the diagnosis extremely difficult, if not impossible.

The symptoms of the period of decompensation are those of renal failure as headache, nausea and vomiting, indigestion, delirium, convulsions and coma. Polyuria is present at times.

Associate symptoms in other tissues are dyspnea, cardiac hypertrophy, edema, cerebral hemorrhage or fever of the intermittent type, and finally, hemorrhage from the various mucous membranes may be present, the disease in these latter stages closely resembling terminal chronic interstitial nephritis, even the urinary picture, which in uncomplicated cases is nearly identical.

*Diagnosis*—Early this may be impossible, and there may be considerable doubt even in the first stage before the opposite kidney has begun to show signs of disease. The symptoms of pain or attacks of hematuria, together with swelling over the kidney with, in uncomplicated cases, a negative urine, are all the physician has to go upon short of an exploratory incision. Later, when the disease is well advanced, and the other kidney be-

comes palpable and shows the same picture, the diagnosis can be made with practical certainty and as the disease progresses, and the patient enters the degree of decompensation, the ease of diagnosis becomes correspondingly increased. As before mentioned, complications if occurring early may offer great obstacles, especially if the second kidney is not affected.

**Prognosis**—The disease is a progressive one which no form of either medical or surgical treatment can stop, the patient eventually dying in uremia or from some complication already mentioned.

Treatment may be divided into medical and surgical. The former may be that of interstitial nephritis, which is too well known to be mentioned here. The surgical treatment is only rarely indicated and would seem to fall under two headings:

First To relieve the suffering of the patient, and

Second To save as much as possible of the renal parenchyma from pressure atrophy.

For example If the cyst became so large that the patient was in constant pain or if ptosis of the organ caused hydronephrosis by kinking of the ureter, especially if mild infection was present, the Roving operation is the procedure of choice. (8) The kidney is exposed and as many of the cysts as possible punctured and contents evacuated, the kinking of the ureter relieved by the division of adhesions if necessary, and the suspension of the kidney so that free drainage may be established.

As above stated nephrectomy should only be performed in the presence of complications which seriously threaten the immediate life of the patient.

The writer's case was a woman aged 29, referred by Dr Francis Leopold who complained of

(1) Pain in the left back radiating down along the course of the left ureter.

(2) Was generally tired and weak and

(3) Had the feeling that the womb was prolapsed.

Her family history was negative, except that one sister died of kidney trouble during labor. There remain six sisters and three brothers alive and well.

**Past history** Patient suffered from scarlet fever, diphtheria and measles when a child, made good recoveries with no complications.

For the past 10 years she had so called attacks of La Grippe about twice a year which were ushered in by chills, fever and malaise and would last a week or ten days. These attacks subsequently proved to be tonsillitis. She has also had a good many headaches. Aside from these diseases the patient's general health has always been good.

Menstruation was somewhat painful before her marriage but has been normal since. She was married at the age of 22, is the mother of three children, who are alive and well and show no indications of the disease. Each labor was normal with no complications.

Present illness began suddenly about three years ago, with pain in the left loin running down the side. The pain remained constantly present for about four months. The patient does not remember whether she had frequency of urination, but believes she had. Her physician told her she had pus in the urine. The left kidney was x-rayed but no stone found, the diagnosis finally being made of pelvis.

At the end of four months the pain improved but would recur quite frequently, especially when she attempted to work, which has resulted in her having to lie down and lead a rather semi-invalid life in order to get relief.

At this time there was frequency of urination with mild urgency, the patient voiding four or five times during the day and three to five times at night. There has been no history of hematuria, incontinence or retention.

Physical examination showed the patient to be well developed, fairly well nourished, wearing glasses. Her throat showed tonsils markedly diseased, teeth were also in poor condition. Lungs were negative. Heart was normal in size, position and action, blood pressure, systolic 200, diastolic 135. Abdomen showed both kidneys enlarged, but much more so on the left side, where the increase was very marked. The surface was hard, nodular and irregular, suggesting polycystic kidney. Elsewhere the abdomen was negative. Pelvic examination showed a slight cervical laceration, and the right ovary seemed somewhat large and slightly tender. Otherwise the pelvis was normal.

Cystoscopic examination showed the bladder normal, both catheters passed easily until a point on the left side about the junction of the upper and middle third of the ureter was reached, where the catheter was stopped. The function from each side, however, was active and the urine clear. Phthalein, given intravenously, appeared from both sides in 8 minutes, the samples being collected from each side for 15 minutes, analysis of which showed 4 per cent on the right and 2 per cent on the left side with 24 per cent in the bladder urine. Unfortunately, part of the contents of the ureteral samples were lost through being overturned. The bladder urine at this time, obtained by catheter, showed a few epithelial cells, an occasional leucocyte and no bacteria. An x-ray of the urinary tract showed the kidney to be free from calculus, following which a pyelogram was attempted but no thorium entered the kidney pelvis.

At the second cystoscopy the catheter was obstructed in the left ureter as before. Samples

collected from each side were entirely negative for pus and organisms. Phthalein from the left side appeared in good amount in six minutes.

The second pyelography showed that a little thorium apparently entered the kidney pelvis, and appeared in the plate in small patches widely distributed. 10 c.c. of thorium injected by the gravity method produced the dull aching pain the patient complained of.

Wassermann and Neisser reactions were negative.

At the third cystoscopy a number 5 olive-tipped ureteral catheter apparently passed full length up the left ureter. 10 c.c. of thorium, injected under gravity, produced a characteristic colicky pain. However, an x-ray revealed no pelvic outline.

The patient was not seen again for about four months, during which time she had had her teeth and tonsils removed, and also had had a miscarriage.

The urine at this time showed no pus or organisms, but a slight amount of albumen. Her weight was 131 lbs. The left kidney also seemed less large. This, the patient stated, was not an infrequent occurrence, although it had not been observed by the writer before.

The fourth cystoscopy, with patient on the fluoroscopic table.

Garceau catheter passed to opposite the lumbar vertebra, where it was stopped. The thorium was then injected which made a little pool about the size of an almond at this region. Finally, a moderate amount of pressure caused the catheter to slip through the obstruction, after which the thorium rapidly ran into the pelvis. Ten c.c. caused no pain. The pelvis, under the fluoroscope, appeared large and irregular in outline, with total obliteration of the minor calices, evidently the pelvis of hydronephrosis. This was confirmed by x-ray plates.

As the diagnosis of bilateral polycystic kidney had already been made, it was quite evident that no permanent cure could be hoped for. Nevertheless, the marked pain and discomfort caused by the kinking of the left ureter made operation justifiable, and in November, 1919, the left kidney was exposed and was found to be at least four times the normal size, typically polycystic and considerably ptosed. The ureter was normal, and the kink was demonstrated to be due to the dropping down of the kidney. Multiple cysts were punctured, the kidney replaced, and typical suspension carried out. The wound was closed in the usual way, a small split rubber drain being left in because of the large quantity of cystic contents being evacuated.

Post-operative showed the patient reacted well. The drain was removed on the day following operation. There was a slight serous discharge from the wound for a few days, after which the wound healed.

The patient was last seen March 13, 1920. She has been entirely relieved from her pain, has been able to work and look after her family, and has gained 6 lbs. in weight.

Her blood retention studies at this time showed the following:

Uric acid	2.3 mg per 100 c.c.
Urea nitrogen	14 " " " "
Sugar	0.11%
Co <sub>2</sub> capacity plasma	32.5 mm
Hemoglobin	75%
Reds	4,384,000
Whites	8,900
Polys	55%
S Lym	36%
L Lym	3%
Trans	4%
Eos	2%
Bas	0%

#### URINALYSIS

##### Bladder Urine

Cells: Some squamous epithelial, occasional red and pus cell.

Organisms: A few slowly motile organisms seen.

Sp. Gr. 1.006

Urea: 5 grms per liter.

##### Right Kidney Urine

Cells: Few round and rare red cell.

Organisms: None seen.

Sp. Gr. 1.001

Urea: 5 grms per liter.

##### Left Kidney Urine

Cells: Masses of round and granular cells, few pus cells with many reds.

Organisms: A few short bacilli present after standing two hours.

Sp. Gr. 1.002

Urea: 5 grms per liter.

##### Right Kidney Phthalein

Amount: 88 c.c.

Per Cent: 18%

##### Left Kidney Phthalein

Amount: 34 c.c.

Per Cent: 3%

(It was found afterward that the left catheter was partly plugged.)

##### Transvesical Leakage

Amount: 850 c.c.

Per Cent: 29%

#### Single or Large Multiple Cysts of the Kidney

—Brin,<sup>9</sup> in 1911, reported a case, and was able to collect only 52 others from the literature, which places it among the rarest of kidney lesions, the small multiple retention cysts of chronic interstitial nephritis being in no way related.

**Etiology**—Berner,<sup>10</sup> in speaking of the etiology of polycystic kidney, emphasizes the difficulties of pathologists in establishing the exact etiology because of the limited amount of material available and the wide differences shown in the specimens themselves. How much more forcefully must this observation apply in this instance as the material for study is so much less. This may be accounted for because excision instead of nephrectomy has been the surgical procedure of

choice, so that with few exceptions autopsy material only has been studied, and the concomitant disease which caused death may do much to alter the microscopic picture.

If the cyst is situated in an otherwise normal kidney there is practically no destruction of parenchyma, and therefore little or no loss of function.

Authors offer but little in explaining the etiology which seems to lie between misplaced embryonal rests which have been stimulated to secrete or retention cysts due to a localized inflammation or obstruction usually around the papillæ.

The unilateral character of the lesion points to a local cause, but it must be remembered that inflammation is common and this cyst very rare. Further, Tollens<sup>11</sup> has proved experimentally that a sudden permanent blocking of a gland duct causes first moderate dilatation, then shrinking and atrophy. The blocking, then, must be slowly progressive and only partial for a time to cause cyst formation. It is difficult also to imagine a local process due to inflammation alone which would show in only one small kidney area and not in others, also the microscopic picture described by many observers often closely resembles that of polycystic kidney.

**Pathology**—The cyst occurs singly in most instances, though five in the same kidney have been reported.

The location in order of frequency is Lower pole, upper pole or intermediate portion.

The cyst usually lies in the cortex just under the capsule, and grows outward away from the kidney. At times, however, the reverse is true and the pelvis and calices may be pressed upon sufficiently to cause deformity in a pyelogram, communication, however, between the pelvis and cyst is most unusual.

The size of the cyst varies from one containing a few cc to another holding many thousands, with the contents clear, serous turbid or hemorrhagic, usually the second, and upon analysis found to contain albumen, salts and at times traces of urea.

The wall may be thin or greatly thickened, and if the fibrous overgrowth has taken place faster than the cystic development the latter may be markedly restricted in size.

Microscopically, an epithelial lining is nearly always found lining the inner cyst wall, the cells are of the columnar or flattened type, depending upon the degree of pressure. In other instances total disintegration from pressure has taken place, and this epithelial lining is wanting, while the wall is made up of fibrous tissue which may extend for some distance into the renal tissue. Evidences of hyaline change, together with nerves, unstriated muscle and blood vessels have also been observed in the cyst wall, with the tubules compressed, dilated or distorted by pres-

sure,<sup>12</sup> while the parenchyma may show pressure atrophy in the immediate vicinity or a mild interstitial nephritis, elsewhere the kidney may be entirely normal or show only slight interstitial change.

**Sex**—The disease seems to occur slightly more frequently in women.

**Age**—Adults are usually affected, cases under 20 years are rare.

**Inheritance** or associated congenital defects play no role whatever.

**Symptoms**—Symptoms may be entirely absent, and the cyst accidentally discovered at autopsy. If however, considerable enlargement has taken place, pain or swelling in the renal region are present either singly or together. The pain is usually localized and of a dull aching character, less frequently it may radiate or be referred to the course of the ureter, groin, bladder, genitalia, or the front of the thigh. Colic is rare, as is hematuria. The swelling may be fixed if adhesions between the cyst wall and retroperitoneal tissues has taken place, otherwise its range of motion will be that of the kidney.

Aside from pain or swelling, or both there are no other symptoms, for the urine is negative and the kidney function unimpaired. At times the X-ray may be of value, and if pressure deformity of the pelvis or calices occurs a pyelogram may greatly help.

The diagnosis must then rest upon the following:

The patient is of adult age, and unless other complications are present, in excellent health.

Constitutionally and locally there are no signs of inflammation, muscle spasm is wanting, tenderness slight and the feel is rather soft. Neoplasm can be tentatively ruled out, because of the absence of cachexia or metastasis, which will usually be present in a tumor that has reached the size of the cyst. The absence of hematuria and an entirely different feel on palpation. Ureteral catheterization aids but little, because the urine from both sides is normal and the phthalein and other tests show little variation in function. If the cyst wall is thick an X-ray will show it well outlined, and if the pelvis and calices are deformed by pressure a pyelogram will also be of great value. The opposite side will be normal, thus differentiation from polycystic kidney can be made with reasonable certainty, because when the cyst has reached this size bi-lateral evidences of polycystic disease will ordinarily be present.

**Prognosis** is excellent, for the cyst can usually be excised *in toto* without damage to the kidney and the patient completely cured.

**Treatment**—As indicated in the prognosis. Excision is the operation of choice and nephrectomy reserved for complications which in themselves threaten life and demand removal of the

kidney, or when actual tests have shown the function entirely destroyed. These tests must be carefully made prior to operation and not by inspection of the kidney at operation, because from the gross appearance function might seem to be lost, but in reality 50 per cent or more still remains when actually tested.

Following are the two cases to be reported.

Case (1) Miss E. L., aged 29, occupation book-keeper. Referred by Dr. Prescott Le Breton, examined June 14, 1917.

Complaint (1) Pain in the right mid-quadrant of the abdomen, radiating down the anterior surface of the right thigh to the knee.

(2) Nervousness and

(3) Palpitation of the heart.

Her family history was negative, except that a sister died of tuberculosis twelve years previously.

Past history. Patient had a number of attacks of tonsillitis when a child, several of which went on to suppuration, she also had frequent attacks of sore throat at this time. Two years before she had suffered with acute sinusitis, with mild recurring attacks. She had always had a rather weak stomach, but there was no definite history of any intra-abdominal lesion. Slept rather poorly, bowels were regular.

Present illness. Patient had complained of this pain in her right side, which was especially aggravated by exercise, ever since she was a child. Four years previously she had had several attacks of sharp pain which lasted ten or fifteen minutes, and which left her side sore for several days. At no time was there any urinary disturbance. Her right knee and feet pained her considerably all the winter of 1916, but this might be explained by the fact that she was obliged to walk over a mile through the heavy snow at least twice and sometimes four times a day. Dr. LeBreton could find no orthopedic reason for the pain in her knee and feet.

Examination showed the patient to be fairly well developed and nourished. The tonsils were practically destroyed by repeated inflammatory attacks. The heart and lungs were negative. The abdomen showed a palpable tumor on the right side which corresponded to an enlarged kidney, and extended down practically to the iliac crest. Above, the mass was lost under the ribs. The swelling was fixed, did not move on respiration and was not inflammatory as it was only slightly tender, and the blood count, temperature etc., were negative.

Urological examination. Catheterized ureteral samples were clear, and macroscopically, microscopically and on culture negative. Phenolsulphonephthalein, given intravenously, appeared simultaneously in four and one-half minutes. The amount excreted by the right kidney in fifteen minutes was 12%, from the left 10%. The pyelogram of the left kidney pelvis showed the same to be normal in size and appearance, and the kidney situated in the usual position. On the right side the contrast was striking, namely the pelvic capacity was only about 2 cc. the pelvic outline resembling two curved slits due to the encroachment of the cysts—which is beautifully illustrated in the accompanying x-ray plate. The pelvis being located between the third and fourth lumbar vertebra which is slightly below the normal limit. In addition to the swelling in the kidney region there was definite tenderness over McBurney's point. Elsewhere the abdomen and pelvis were negative.

Operation July 2, 1917. Nitrous oxide anesthesia, oblique kidney incision. Peritoneum opened and appendix removed, which was normal in length, but contained a rather hard, fecal concretion, while the

mucous membrane showed evidences of chronic catarrhal inflammation.

The kidney was then delivered after freeing very dense adhesions at the lower pole, which accounted for the lack of mobility. Three cysts were present, one coming off the lower pole, about the size of a hen's egg, whose wall was buried in adhesions except where it was attached to the kidney. The two other cysts were about the size of English walnuts. One was situated in the anterior upper portion and the other in the posterior lower portion. The walls of these two cysts extended down against the pelvis, accounting for the deformity. It is doubtful whether the cyst at the lower pole played any role in the pelvic distortion.

The lower and anterior cysts were completely excised. The wall of the posterior cyst was so firmly attached to the pelvis that the latter was accidentally opened and closed, leaving a portion of the cyst wall attached to it in one place.

The wound left by the removal of the cyst was closed with mattress sutures of catgut, except the posterior one which was drained by a small tube. Longyear's ligament and the remnants of the capsule were then sutured to the abdominal fascia, and the wound closed in the usual manner. The drain was removed the following day and primary union obtained, the patient being discharged from the hospital July 18th, 1917.

In August the patient experienced a pain in the region of the incision which was opened at its lowest point and which discharged a considerable amount of serum until September, when the sinus healed and did not recur. Urinalysis at this time was entirely negative. Locally there was some tenderness and swelling present over the kidney.

In November, 1917, ureteral catheterization showed normal urine and normal function from the right side, the pelvic capacity being 10 cc. The urinary drainage appeared perfect, while a pyelogram showed the pelvis well filled, but many of the calices obliterated due to operation. The swelling over the kidney was about the same.

In June, 1918, examination showed the kidney practically normal in size and free from tenderness. The patient still had some pain in the region of the incision, especially when bending to the left, which was believed to be due to the adhesions on the right side.

The patient has not been seen since then but an indirect report states that she has had no recurrence of her trouble.

Case (2) H. T., aged 64, referred by Dr. Edward E. Hummel of Darien.

Complaint. Intermittent attacks of hematuria lasting for several weeks at a time and considerable in amount.

Family history was negative.

Past history was negative, except for an attack of pneumonia six years before.

Patient's present illness began in June, 1917, the onset being sudden and painless.

At the first examination, July 19, 1917, owing to a moderate prostatic enlargement, a small cystoscope only could be passed, and at that time several dilated veins around the vesical neck were discovered, and the urine from both ureters seemed clear. As the hematuria had stopped a week before the examination it was concluded that the bleeding had come from a ruptured vein caused by the prostatic congestion and hypertrophy.

Shortly after the patient went home the hematuria returned and lasted until the 27th of August, when it suddenly stopped and he remained well for about a month. At this time, if he remained in bed and kept very quiet the bleeding would stop, but as soon as he got up and around there would be a recurrence.

On November 24 1917 under nitrous oxide anesthesia cystoscopy showed a normal bladder with the hematuria coming from the left ureter. Right and left ureteral urines were negative for pus and organisms and differed only in the presence of blood cells from the left side. A functional test of indigo carmine, given intravenously appeared simultaneously in two and one half minutes and the function was normal from both kidneys. Pyelogram of the left kidney showed a normal pelvis both in outline and capacity.

On physical examination nothing abnormal could be discovered by renal palpation and in spite of the patient's years and the fact that he looked quite sclerotic his general health was excellent. Since the onset of the hematuria he had lost nearly 30 lbs in weight and had become rather anemic.

Because of the inability to control the hematuria by pelvic lavage and with the knowledge that the remaining kidney was capable of good function operation was advised and accepted.

Following the previous nitrous oxide anesthesia for cystoscopy the patient had a severe attack of bronchitis therefore having this in mind all possible precautions were taken before and after the operation.

On December 18 1917 the kidney was exposed by the usual oblique incision. Nothing abnormal could be detected on section or palpation. The cortex was then opened and the kidney explored as far as possible with negative results. As a definite diagnosis could not be established and nephrectomy seemed the only alternative this was reluctantly performed. The patient did well for the first forty eight hours then developed a severe bronchitis which rapidly passed into a terminal pneumonia death occurring on the fifth day after operation.

Examination of the specimen showed a cyst about one quarter of an inch underneath the cortex and communicating with one of the upper calices. A dilated vein projecting into the cyst had ruptured and was the cause of the hematuria.

I am indebted to Dr. Burton T. Simpson, of the New York State Institute for the Study of Malignant Disease, for the examination and report of the specimen.

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## SYMPTOMATOLOGY OF PERFORATED DUODENAL ULCER \*

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Of all the common acute abdominal catastrophes there is none that carries with it more pain and potential danger than the acute perforation of the duodenal ulcer. It is conceivable that an acute pancreatitis may be more painful, but it is certainly a rarer condition. In gall bladder, intestinal or appendiceal perforations the pain is not to be compared with that of the perforated ulcer in its early hours. In fact perforation of these organs are said to be synchronous with an improvement of the general symptoms for the time being. I have never seen the pain of a ruptured ectopic gestation or a twisted ovarian cyst, or the gastric crisis of tubes equal the pain of an acute perforation, although all these conditions are to be considered in differential diagnosis, and have been mistaken for duodenal perforation, as have also menstrual pain and angina pectoris.

In the subacute and chronic perforation of gastric and duodenal ulcers, there is a gradual increase of symptoms previously endured without the terrific climax at the exact time of perforation, and more time is given for the study of the symptoms and diagnosis. All the signs point toward the stomach and duodenum and there is far less chance for confusion with other neighboring viscera.

On the other hand I think every surgeon here can recall one or more cases of acute perforating round ulcer which occurred without any warning symptoms whatever, and also without definite previous history of ulcer or even indigestion. These cases may, indeed be very hard to diagnose. However, the cases which have no antecedent history are rare. Briefly summed up, the symptoms complex of a non perforated duodenal ulcer is so complete that Dr. Deaver has stated that the diagnosis may in a typical case be made over the telephone or by correspondence.

It is going afield, perhaps of the purpose of this paper to touch on the symptoms of non-perforated ulcers, but as I am going to show the determination of the site of the perforation is so difficult to make that it is highly proper to consider the previous history and X-ray findings.

The typical duodenal ulcer gives a history of gastric distress extending over a period of years. I use the word distress rather than "pain" advisedly. There is a feeling of fullness in the chest not unlike that of the epileptic aura, the eructation of gas which is usually bitter, and aided or corrected by the use of alkalies. The condition is periodic, several months of comfort being followed by several months of distress. In

\*Read at the Annual Meeting of the Medical Society of the State of New York, at New York City March 24 1920.

point of time it is of the utmost importance to remember that the distress begins several hours after meals, averaging about four hours, and that frequently the trouble is worse in the night. The immediate effect of food is to relieve pain, rather than otherwise. This is so true that I have known many factory girls and mill hands who would relieve their symptoms in the late afternoon by eating graham crackers, buttermilk and other easily available foods with which they provide themselves. A typical loss of weight accompanies these symptoms during the active months of the ulcer, usually in the spring and fall. On the other hand, vomiting, hematemesis or blood in the stool are absent in more than 80 per cent of the cases. These symptoms are usually confirmed by the X-ray findings, which briefly, as pointed out by Carman, are deformity of the bulb, gastric-hypermotility or gastric-hyperperistalsis. There is a six-hour residue if there is a duodenal obstruction. On the other hand, there is a far too rapid expulsion of the barium if there is no obstruction. This with the absence of any niche on the stomach wall strongly confirms the lesion as duodenal.

All of these so-called dyspeptics who have a proven duodenal lesion have been under the observation of physicians many times, and nine out of ten cases can be definitely diagnosed and card-indexed by the examining physician against the day when a perforation takes place or an exploration for the relief of the symptoms is done. Indeed, they should be card-indexed or classified just as certainly as blood transfusion donors.

Without this history, which Deaver, Monahan and others say is so definite, and with its accompanying X-ray findings, the anatomical location of a perforation is very uncertain. It is certain that after the first period of contamination has passed, and the period of infection or peritonitis has set in, it is useless to try to differentiate between the duodenal and gastric perforations. I have issued a questionnaire to the heads of several of our larger Canadian and American clinics, and I find it almost universally agreed that in the absence of previous history, even at the very moment of perforation, and before there has been any chance for peritonitis, and while the pulse is still characteristically slow in the presence of this extreme catastrophe, no localization of the site of acute perforation can be made. I have this opinion from Deaver, Mayo, Gibson and others, that it is impossible after perforation has taken place to say whether the localization is duodenal or gastric—the anatomical landmark being the pyloric vein. Monahan, however, does describe a differentiation, stating that when the ulcer is in the stomach, the signs are those of general peritoneal involvement, while in the duodenal perforation, the course taken by the extravasated fluid leads to a more rapid and acute involvement of the right side of the ab-

domen or the right iliac fossa. Pathologically, this is explained by the fact that the food mucus, bile, etc., escape from the duodenal perforation to the upper surface of the transverse mesocolon, to the right of the elevation or the highest point of this organ. It then flows to the right toward the hepatic flexure and down the outer side of the ascending colon to the iliac fossa and to the rest of the abdomen, including both kidney pouches. It reaches the right kidney pouch first, but it has not been my experience that infection in this region gives any help in establishing diagnosis.

Pathologically, therefore, it would seem that a few hours after perforation, appendicitis and right-sided symptoms are more likely to be simulated in the wake of a duodenal perforation, and that many cases will be diagnosed and operated for appendicitis. This was true of the first case that I operated. Fortunately, the extreme rigidity of the upper abdomen, the early slow pulse and the intense rigidity of the whole body will usually guide the surgeon in making a generous right rectus incision. Rigidity of the body, in my experience, has been quite marked in contradistinction to the restlessness and posture of patients suffering from gall-stones, renal colic, intestinal obstruction or appendiceal colic. So marked was the symptom in one of my cases that the patient, who had a recent perforation, could not be moved from his chair to a nearby bed until the extreme pain had been relieved by chloroform administered in the sitting position.

With regard to the relative percentage of gastric and duodenal perforations, I have been able to gather some very interesting statistics. In a personal communication, Dr C H Mayo reports that 84.9 per cent of the perforated ulcers in the Mayo Clinic, for thirteen years prior to January 1, 1919, were duodenal. That is 2,113 perforated ulcers of all types, 1,793 were duodenal and 15.1 per cent were gastric. The relative percentage of non-perforated ulcers did not materially differ from the above so that the large material of this clinic does not permit us to say that there is any appreciable difference in the likelihood of perforations depending upon the site.

At the Massachusetts General Hospital the subject of perforation is now under investigation and the statistics will be known in about six months. I am permitted to say, however, that nearly 60 per cent of the perforations are duodenal. Dr Charles L Gibson in his series of cases has kindly furnished me with statistics showing that gastric perforations are in the majority 46 per cent being duodenal. These percentages more nearly agree with those of Dr E Mac D Stanton, in whose series 70 per cent were gastric. Dr Deaver did not have the exact percentage available at the time of my inquiry, but says that the duodenal ulcers, both perforated and non-perforated are far more commonly met with.

In my own series of cases—10 in number—three cases were gastric, five duodenal and the other two were in the pyloric area but the large amount of lymph locally deposited prevented me from definitely deciding the exact anatomical location. I am convinced that many of our statistics are to some extent erroneous and that there are many cases where it is injudicious to try to satisfy one's mind as to the exact location of the lesion being dealt with it being far more important to make sure of sufficient patency of the pylorus and duodenum than to be able to record whether the ulcer was proximal or distal to the pyloric vein.

In no report, and I have statistics of a very large number of cases, was I able to get any intimation that any particular anatomical site of an ulcer has any influence on the probability of a future perforation. All the conditions of subphrenic and other localized abscess formations which more frequently follow the sub-acute or chronic perforations I have purposely not mentioned in this paper. My personal experience with them has not been large but has been sufficient to convince me that with an indefinite or atypical history the diagnosis may only be established by exploration as soon as a mass is demonstrable.

My conclusions are that at the exact moment of perforation no differentiation of symptoms can be made. This is also true after twelve hours have passed and peritonitis is generalized. There is a time between these periods, however, when a predominance of the right-sidedness of the symptoms, increased pain and tenderness on the right side, a little more extreme rigidity of the right rectus muscle favor the diagnosis of the duodenal perforation rather than gastric. From a further large series of reported cases, I am fully convinced that approximately 70 per cent of all perforated ulcers will be found to be duodenal and that our greatest aid in differential diagnosis of the site of perforation at any stage is the possession of a well recorded history, confirmed by a series of X-Ray findings.

### ABDOMINAL INCISION \*

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THE subject of abdominal incisions still affords a group of problems upon which opinions vary. The final solution of these problems will depend upon personal observation and experience is influenced by the information derived from a further study of the normal healing of tissues.

The selection of this subject for discussion

Read at the Annual Meeting of the Medical Society of the State of New York at New York City March 24, 1920.

seems warranted by its general importance. It is of particular interest to me by reason of certain military experiences which I will describe subsequently. It is my belief, too, that it is worth while occasionally to select and restate certain accepted facts which seem of particular importance, and attempt to add newer applications which may be justified.

In general the location and direction of the incision, whenever possible, ought to be determined by the arrangement and function of the musculature and the course of the innervation. The preservation of muscle tissue and nerves is paramount. The final universal adoption of certain modes of approach to the abdominal viscera must depend on accurate anatomical knowledge based on embryologic development. I propose to discuss various incisions separately.

The McBurney incision, to my mind, represents the ideal type of incision, conforming to all the underlying principles. It is a matter of some astonishment to me to observe that some surgeons do not hold it in that degree of favor which it deserves. Many of their objections would vanish if greater attention were given to certain details. Especially worthy of mention is the complete and orderly spreading apart of each layer in its turn, in order to avoid trauma to muscles and nerves. Should the exposure prove inadequate each layer in succession should be spread more widely rather than to attempt enlargement of the wound by main strength of arm. Occasionally it may be advisable to incise the lateral edge of the rectus sheath at the point of continuation of the split of the internal oblique and transversalis. Whether a high or a low McBurney should prove of greater value with regard to a particular appendix can be surmised, not infrequently, from the physical examination and occasionally from palpation immediately before making the incision. This final palpation of the patient under the anæsthetic is often of considerable assistance in other respects. The low McBurney is generally to be preferred because of its easier enlargement, because it permits better exploration of the pelvis, and because of more ready drainage of the pelvis, either through incision itself or through a separate stab wound. The occasional occurrence of inguinal hernia after the McBurney incision is, in my opinion, due to needless trauma to the nerves. Destruction of the ilio-hypogastric and ilio-inguinal ought never to occur even in a low McBurney if there is due regard for the tissues in the preliminary steps of the incision.

The other lateral incision to which I wish to refer is incision through Petit's triangle with similar spreading of the external oblique in front and the latissimus dorsi behind. It is admirable though limited in its application. However, it is unequaled as a method of approach to an appendix known to be retrocecal to the kidney and



ureter, and to the entire retroperitoneal region. Whether it may not prove the best location for colostomy, that is, for a permanent artificial anus further experience will tell. This muscle separating incision through Petit's triangle has many of the anatomical advantages of the McBurney type. It is not actually analogous in character, for after spreading the external oblique from the latissimus dorsi, the floor, consisting of the lumbar-transversalis fascia, must be incised. It admits of excellent closure. Destruction of important innervation is avoided when moderate care and attention are given.

Whether any true muscle-splitting incision for approach to the upper abdomen, especially the gall bladder, will prove feasible is doubtful. The methods described bear only the faintest analogy to a McBurney. The obstacles are due more to the course of the innervation than to the musculature.

The proposed transverse abdominal incisions also seem slow in gaining favor and justly so. Although it is true that a transverse incision of the recti muscles is correct in conforming to the direction of the fibres of the sheath of the rectus, as they are the actual continuation of the aponeurosis of the oblique and transverse abdominal muscles, yet the direction of the fibres of so conspicuous a structure as the rectus muscle itself is longitudinal. Nor does this transverse incision lend itself so readily to alteration and enlargement to meet operative requirements. The mechanical difficulties of its proper performance and closure outweigh the lesser difficulties of secure closure of the longitudinal wound of the posterior sheath. By the use of one of the various methods of stitching by which a loop of fibres is caught up in each stitch of the posterior sheath easy and secure closure can be achieved. (The best of these methods is that of J. B. Jackson, being a cross-buck mattress suture illustrated in *S. G. & O.*, October, 1919.)

Therefore, the classical longitudinal incision remains the method of choice for the upper abdomen. In certain suitable cases it can be modified in this respect that after the rectus fibres have been separated, the posterior sheath may be incised transversely. This is the nearest approach to a McBurney. If it should be found desirable to alter or enlarge this incision, one can readily revert to the classical longitudinal type. The question whether the incision should be made directly through the rectus fibres or merely through the anterior sheath with lateral retraction of the muscle itself offers but little discussion. Despite assertions to the contrary it appears that the innervation of the medial portion of the split rectus readily recovers. The disturbance to circulation and nutrition both to the muscle, and especially to the sheath, speaks

against separation of the sheath from the muscle. The method of choice, therefore, seems to be the older one of the direct course through the muscle itself.

For the lower abdomen and pelvis various forms of transverse incisions have been described, but the classical longitudinal incision in the mid-line remains the method of choice. It affords unexcelled access to the pelvic viscera and the mid-line is preferable for anatomical reasons, especially because of the narrowness of the linea alba in this region, and because below the semilunar fold of Douglas the posterior sheath of the rectus is absent.

The question of length of incision can be summarized as follows. Increased length permits greater thoroughness and ease of operation, with saving of time and reduction of shock, yet there is greater danger to innervation and greater potential danger of weakness of the scar. Toxicity from wound absorption may be as great from a short incision having bruised edges as from a long incision in which the edges have not become injured. Rapidity of healing is in proportion to the lack of trauma to the wound edges. Clean unbruised surfaces heal rapidly.

In the closure of any incision emphasis is primarily on accurate apposition of each anatomical layer. Tissues of like character heal quickly. The intervention of unlike tissue, especially particles of fat, is very detrimental. Freedom from blood and dead space is equally important. The nutrition of certain layers, such as muscle sheaths, may be enhanced by suture of the overlying fascia, either superficial or deep, as a separate layer. With these precautions there is quicker recovery of innervation and decreased production of scar tissue. In proportion as scar tissue does not extend from one layer to another, there is less interference with the ultimate recovery of function of the abdominal wall.

In those cases in which patients complain of painful abdominal scars the examination usually reveals a rather thick heavy scar. Pain due to adhesions to the peritoneal surface must be excluded. Hernia also must be excluded. The explanation of the painfulness of a scar can lead to but two factors, either that nerves are involved in the scar or that traction is produced by the denseness of the scar. During muscular activity the various layers of tissue cannot glide over each other, due to the dense scar forming an immovable unyielding mass extending through all the layers. Often the traction on the skin is very obvious. There is inadequate functional restitution, for the natural gliding of one layer upon another is not possible.

Ordinarily patients make but little complaint because of discomforts of this character. They accept discomforts of the scar as a matter of

course. The time may come when they will be more critical of the sort of scars we leave.

A special opportunity of this nature came to me while in military service in France. A considerable number of soldiers were sent constantly by their division surgeons back to base hospitals because of painful abdominal scars and hernia scars. They offered a serious problem, and a careful study had to be made in each case to decide whether anything could be done and whether they should be sent back to their organizations, as Class A men. Without doubt the very arduous physical strain of duty at the front tested the functional capacity of a scar to an unusual degree. In addition the psychology of the situation had to be considered. Excluding cases of hernia of the wound and of abdominal adhesions the findings of the remainder showed defective scars usually presenting a dense unyielding mass of fibrous tissue preventing free mobility of the layers of the abdominal walls.

The conditions in hernia operations, though similar, were in a class by themselves. Often the inherent requirements of the repair in hernia offer an explanation and excuse not applicable to purely abdominal wounds. Many of these hernia operations had been done in the camps in the United States, and the men were back on drill in a month's time. The exact percentage of effective Class A soldiers obtained by the repair of hernia in the training camps ought to be investigated, taking into consideration the entire subsequent history of their army service in France to determine whether it is not futile to attempt to make use of this class of men for Class A military service. Influenced by my observations at base hospitals I am inclined to think that a very large number of these repairs failed to produce first-class soldiers, and that they should have been put into the B Class of limited or special service immediately after the operation. Only in operations of long standing should a soldier be classed for front line duty.

Since the close of the war I have had similar opportunity of making many surgical examinations for the Bureau of War Risk Insurance, and I should say that complaints of discomfort of scars both abdominal, hernial, and general wound scars, though minor as individual cases, form a tremendous quantity taken as a whole. They lend weight to my thought advanced in this paper that excessive scar formation is to be avoided.

I have purposely refrained from any reference to post operative hernia in this paper in order to emphasize so much the more, that in closing abdominal wounds our aim should be not merely the avoidance of hernia but an attempt to achieve actual functional reconstruction of the path of our entrance into the abdomen by securing normal anatomical and physiological restitution of the abdominal coverings.

## THE COURSE OF THE TUBERCLE BACILLUS FROM SPUTUM TO THE CHILD\*

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THAT human sputum is the chief source of tuberculous infection in human beings is admitted by every one, and should today require no argument. But the statement of the fact conveys no information as to the character of the immediate medium of infection, and it is plain that the nature of the case warrants considerable divergence of opinion concerning the latter. It is also obvious that the actual *modus operandi* of infection can be observed in only exceptional instances, and that therefore the methods, or the relative frequency of the several presumptive methods of infection, cannot be determined by direct scientific means. As concerns childhood infection the really material information that we desire is how *most* children receive sputum bacilli; only the correct answer to this question can provide the sound basis for infection preventive measures.

Since we can make but few direct observations on this point we must form our opinion from evidence that is more or less collateral, and in building up this opinion, we must pass under scrutiny the various ideas, none of which can yet be said to have emerged from the shadow-land of hypothesis, which have been put forward as postulating the *most common* method of infection from tuberculous human sputum.

Many hypotheses have been advanced, but of all these there are three which have gained a wider acceptance. These are:

1. Cornet's, the development of an idea as old as Villermé's work, and erected on a foundation of bacteriological examination of various residues and articles of ordinary human intercourse and traffic as well as on inhalation experiments with small animals. This hypothesis formulates the original source of infection as human sputum, the method of infection, deep inhalation into the lung, the infecting material, dust which contains desiccated pulverized tuberculous sputum mixed with it, the initial foci pulmonary, the places where infection takes place, indoors, usually homes, factories, etc., and particularly the homes of consumptives.

2. Flugge's, the elaboration of an idea first tested experimentally by Trappeier in 1878 and put forward after a remarkably exhaustive series of studies on the bacteriological and physical qualities of sputum. According to this hypothesis the original source is human sputum, the method, deep inhalation into the lung, the material, droplets of moist spray emitted by con-

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City March 25 1920

sumptives during forced expiratory acts, the initial foci, pulmonary, the places where infection most commonly occurs, indoors, and after prolonged and intimate contact with consumptives

3 Aufrecht's, Weichselbaum's, etc. The original source is human sputum (or cow's milk), the method, by ingestion, the material, sputum or anything that is contaminated by sputum, the initial foci, in the throat or its appendages, from where metastases may occur to the lungs or elsewhere

It is necessary to keep in mind the important conditional requirements that these various hypotheses lay down. According to Cornet and Flugge, infection takes place almost exclusively indoors. Cornet's method is indirect infection, Flugge's, direct, from person to person, and he emphasized the necessity of prolonged and intimate contact. Both viewed raw sputum as insignificant. The third hypothesis is not so strict in its conditions, anything and everything that contains tubercle bacilli and passes human lips can set up infection. Of the three the Flugge droplet idea possesses today by far the widest currency, and as a corollary it has become almost aphoristic that tuberculous infection is an indoor affair and that complete safety reigns abroad.

To be even reasonably sound, any hypothesis must, of course fit in with the actual conditions and facts of everyday existence. What really obtains among human beings as regards tuberculous infection is vastly more significant than what *can* happen. We can, for instance, infect all susceptible animals, including man, most easily and most certainly by the method of subcutaneous inoculation, but only a moment's reflection will point out the fallacy of an induction that would at once read into human experience the authenticity of a fact that is easily demonstrable in the laboratory. Similarly, that guinea pigs can be made to inhale moist sprays of tubercle bacilli deep into the lungs and that lesion develops there and therefrom of itself does not in the least point out that most human beings are infected in the same manner. There is no doubt that if guinea pigs were compelled to live in surroundings throughout which tuberculous human sputum was lavishly disposed in other ways than as moist sprays, the animals would be just as surely infected with tubercle. At any rate, any discussion of tuberculous infection, once the possibilities of infection are granted, must properly begin with the well-established facts of infection among human beings. It is these which any reasonable hypothesis must satisfactorily adjust itself to.

The possibilities of human infection which will probably be universally admitted may be set down summarily as follows

1 The human being can be infected in a vari-

ety of ways—by inhalation, with the lodgment of bacilli in either the upper or the lower respiratory tract, by ingestion, with infection taking place in either the upper or lower digestive tract, by inoculation, whether this be done subcutaneously, intracutaneously, intravenously, intramuscularly or subdurally

2 Tuberculous sputum can arouse infection whether it be introduced in the form of a suspension—sprays, etc., or as inhalable or ingestible dust, or in its natural or crude condition

The well-established facts of human infection are few, but today none rests on better evidence than that of the *early rapid tubercularization of the species*, especially that part of it which lives under the conditions of highly organized community existence. Any infection hypothesis that pretends to even a limited universality of application to human beings must take account of this state of affairs. If it fails to account for the latter, then it must be given up as a *deus ex machina* of human infection—and this altogether apart from our success or inability to bring forward a satisfactory substitute.

An open mind will immediately question whether this early and rapid tubercularization of the race can be brought about by indoor association and by prolonged and intimate contact with tuberculous individuals—with "open" consumptives, as the latter would have to be. "Where," one will immediately ask, "Where are all the consumptives that strike such close contact with our children, so that within six years after the latter's birth one-half and more have been infected by them (or at least a third if, for the moment, we leave bovine tuberculosis out of the reckoning)?" Tuberculosis, the manifest pulmonary disease, is common enough—appallingly common. But can it be so frequent as to bring about so enormous a number of infections among our young under the conditions of contact that have been postulated? Certainly our highest available figures wouldn't make it so. If infection may take place indoors, or if direct contact with coughing consumptives is a *sine qua non* of infection, why is it that among even young children there are so many in whom we cannot trace the source of infection? Infection is, of course, promoted by contact, and for many children the source is easy of detection, but for a large proportion it remains thoroughly obscure.

Closer analysis of infection charts serves only to increase our doubts as to the sufficiency or probability of the dust or droplet hypothesis in explaining the generality of childhood infection.

We may begin by making a composite chart from such investigations as those of Moro from Munich, of Mantoux from Paris, of Petruschky from Danzig, of Ganghofner from Prague, of Pirquet and of Hamburger from Vienna, of Nothmann from Dusseldorf, of Veeder from St. Louis, and of Armstrong from Framingham

Differing in certain details—in the method of test employed in the number of individuals tested, in slight variations of positive reactions in certain very narrow age groups—all the above investigations disclosed an amazing agreement of results when it came to the broader essentials of the question—the question, namely, of the incidence of tuberculous infection among city children.

Speaking broadly, about 10 per cent of the children exhibit infection by the end of their second year; at three years, from 15 to 20 per cent, by six years, from 50 to 60 per cent, and by fifteen, about 75 per cent. In other words, taking 75 per cent, or three-fourths of all children as our basis for the infected individuals by fifteen years of age, we find that during the first two years, 10 per cent of all children, or about one seventh of all the infected, receive their first infection, during the third year, one seventh more, between four and seven, one-half more, and, between seven and fifteen, one-seventh more the total roughly making up the three-fourths of all children who are found to be infected. The significant feature of such an analysis is that during infancy about two sevenths of the infected become infected for the first time, during early childhood (from four to seven years) about one half, and during later childhood (from seven to fifteen) about one-seventh.

Were we to adopt that line of reasoning which would make the thing to be explained fit a hypothesis, then in accordance with the Cornet and Flugge ideas, we should be obliged to affirm that, between four and seven, children are confined in doors more than between birth and three, that during the former period they are in closer and more intimate contact with consumptives, or that parents, relatives and close associates are more likely to be "open" consumptives when their child associates are between four and seven years of age.

The last named statement may be dismissed as trivial and unbelievable.

It should take but little reflection or observation to prove the falsity of the first observation. With the perfection of locomotion and a widening of outside interests the normal child's range of activity expands enormously from three years on. It is just at this period of from four to seven, when able to run at large and not ready for the discipline of school, most children spend a larger part of their time out-of-doors than at any other period of their lives. Such are the facts of life, which should be placed alongside the other fact that during this time most children acquire tubercle for the first time.

It is the helpless infant for whom is established the closest physical contact over a long period, with certain individuals. Fixed and helpless, it does not escape the indoor dust that may be waft

ed about, and the creeping infant, close to the floor, the furniture and the walls, establishes a more prolonged and a closer and larger association with house-dust than we can imagine for any other member of the family. Again, it is the infant whose diet is so largely of milk, perhaps cow's milk. Yet the total result of unusual contact with milk with dust and with people in the home is an infection incidence of only ten to twenty per cent. It seems amazingly small, yet it probably represents the relative importance of dust plus droplet plus cow's milk in the scheme of tuberculous infection.

It is difficult to understand why the dust and droplet ideas, particularly the latter, have so dominated our views of tuberculous infection—difficult to understand, unless we remember that both were put forward to explain pulmonary disease at a time when pulmonary disease was practically synonymous with pulmonary infection, and when hardly any one doubted that pulmonary foci were always direct and primary foci from without. They were enunciated at a time when there was no conception of the enormous extent of early infection. Both Cornet and Flugge labored hard to elucidate how and why the adult acquired pulmonary tuberculosis from association with adult consumptives in the home, in the factory, in the convent, the prison, the barracks and the office. It is quite likely that their views were eminently satisfactory for a generation whose ideas of the latency of infection and the latter's early occurrence and of the facility of obscure metastasis throughout the body were vague, imperfect and practically non-existent. It will require some temerity to affirm that they will explain tuberculous infection as we understand it to day.

But can we do any better?

We cannot explain infection scientifically—so much is certain, but neither did the dust or droplet hypothesis. Yet we would ask why the most abundant immediate source of tuberculous infection has never been given its due? Raw sputum recently expectorated, bespatters our streets everywhere, and our floors in far too many places. And those who deny that our children are missing or escaping contact with it are simply speaking outside the facts. Children at home live and play close to the floor. Children outdoors engage for the most part in what we call "ground" games—at marbles or at top spinning, at rope skipping or at ball. And doing so, they cannot help attaching to their hands the offal of the sidewalks and the streets, and, with this offal, the sputum of many people. Children's hands are of varying degrees of cleanliness, but we may be sure that those of the normal child are dirty most of the time. Few children have developed a consciousness about putting their hands in their mouths. And the net result of the

reaction of our spitting habits on the activities and habits of the child cannot help being otherwise than that considerable raw sputum will find its way into our children's mouths. The prevalence of oxyuris among children should teach us that the child will do its part so far as putting contaminated articles in the right place is concerned, if given the opportunity, and the opportunity—the source—is here. It is the raw sputum which is everywhere with its tubercle bacilli, its diphtheria bacilli, its pneumococci and streptococci, and what not.

Cervical lymphadenitis is perhaps the most frequent manifestation of clinical tuberculosis between the ages of three and ten. Foci in the neck nodes undoubtedly represent infections that occurred by way of the mouth or nose, and the probabilities in most instances are all in favor of the former portal of entry. As with infection elsewhere in the body, we shall not be far wrong if we affirm that for every case of clinically manifest cervical lymphadenitis there must be several nonclinical infections. Viewed in this light, we begin to appreciate how frequently upper digestive tract localizations of infection must occur in childhood.

Studying large series of cases, more than one observer has been able to detect a tuberculous infection incidence of 5 per cent in tonsils and adenoids which had been removed because of other pathological conditions, and which showed no gross evidence of tubercle. Since serial sectioning or complete inoculation of all the material has never been attempted, this 5 per cent must be regarded as a minimum of tonsillar and adenoid infection in the patients in question.

This high incidence of naso-pharyngeal and cervical infection in childhood should establish beyond question a common *locus* of early infection. Taken in connection with the curve of infection for children in general, with the ubiquitous source of infection as it exists both indoors and out, with the habits and activities of the child, it should go a long way toward indicating how and why children are infected with tubercle. Moreover, it should be remembered that through sputum expectorated abroad a single consumptive's range of infection is enormously widened, if compared with the possibilities of direct contact or close association indoors. And, keeping this in mind, we can begin to understand the rapid infection of our children.

I have said elsewhere that "no man can lay down the verities of tuberculous infection;" and, in concluding this paper, I shall ask your forbearance while I quote the remainder of the paragraph that follows the above phrase.

Yet it is quite proper that the student of tuberculosis should hazard his opinion. Were we asked for this expression then we should reply that primary infection can and undoubtedly does occur in any one of several ways. Cow's milk

and contaminated food may be ingested, and thus initiate infection by way of the upper or lower digestive tract. This happens often, and is a particularly frequent source of infection in infancy and early childhood. At every age man may breathe in bacilliferous dust or droplets, and thus by the mouth and nose take in bacilli that arouse lesion in the upper or lower respiratory tract (tributary to mouth, throat and lungs), or in the upper digestive tract (tributary to mouth and throat). The infant, unable to propel itself and in a comparatively fixed and static environment, is particularly prone to this type of infection if the proper associations are at hand, and every child in "tuberculous" surroundings is in similar danger. With the perfection of locomotion and introduction to the world at large, outside the home the child's chances of infection greatly increase, for now it comes directly in contact with more people, but particularly with the crude sputum of many people. By acquiring sputum on its hands and introducing the latter into its mouth it establishes ideal conditions for infection, and conditions at large and the curve and character of childhood infection bear out the presumption that this method of infection is a common one. Manifest tuberculosis of the cervical appendages is particularly frequent after three years of age—much more so than before, after ten, it is again less common than between three and ten. Inhalation, ingestion, contact with phthisical patients and contact with the sputum of the latter all play their part. None of these methods can be ignored. Out-door infection is certainly more frequent than has usually been emphasized, and we should always remember that as concerns the numerical possibilities of infection, the raw sputum, emitted by a consumptive on the street, has a range of infection inordinately greater than has the same consumptive in direct contact with human beings and coughing upon them. The prevalence of sputum will help explain why so many human beings become infected early in life.

## ENDOSCOPY, AS A DIAGNOSTIC AID IN DISEASES OF THE UPPER AIR PASSAGES AND OESOPHAGUS

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**A**S a precise method to confirm physical signs, symptoms and radiodiagnosis of the upper air passages and oesophagus, endoscopy is a valuable aid to our present methods of investigation.

Our observations, endoscopically, of the tracheobronchial tree and oesophagus have been mainly directed in the search for foreign bodies. Arrowsmith, in an article that appeared in the

\*Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 25, 1920.

*New York Medical Journal*, September 15, 1917, writes as follows "In our enthusiasm in foreign body work we have very largely lost sight of the greater importance of endoscopy in the diagnosis and treatment of disease, a field perhaps less dramatic, but certainly eventually of greater scientific value

"It is fair to assume that pathologic states which are recognizable and may be amenable to local treatment are far more numerous than the cases of accidental inspiration or swallowing of foreign bodies"

In practised hands endoscopy is not a formidable procedure. However, the general idea seems to prevail among internists and even among those practising along special lines, that a general anesthetic is necessary to make these investigations

The internist is loath to refer a patient for special methods of investigation that will require a general anesthetic

The patient looks upon the taking of a general anesthetic as a serious matter, and cannot be blamed for assuming this attitude

Properly prepared and properly cocainized, a patient may be laryngoscoped, bronchoscoped or œsophagoscoped with less discomfort than the same individual were he to have his bladder or ureter examined endoscopically. Excepting in those patients who are unusually nervous or in children who are unmanageable local anesthesia is used

œsophagoscopy is usually done without the use of cocaine and in laryngoscopy and bronchoscopy of smaller children the same procedure is followed

When a general anesthetic is not used it would seem that pathological lesions are more quickly recognized due mainly to the absence of congestion of the parts and the lessened amount of secretions. However, when an anesthetic is indicated either is used

More frequent examinations of the œsophagus and upper air passages by endoscopic methods will surely aid all wishing to arrive at an early and exact diagnosis in pathological conditions of these areas

Sight is our most important sense and our most important aid in arriving at a diagnosis

Confirmatory of skiagraphic findings in the chest trachea and œsophagus or conditions in which the skiagraphic findings are unsatisfactory, endoscopy certainly is very useful

The success or failure of an endoscopic examination is mainly a question of practical application and deftness in the handling of the various instruments used

*Indications for Examination of the Larynx and Tracheobronchial Tree*—Hoarseness, cough and dyspnoea being the predominant symptoms

First—Those cases of acute dyspnoea

1. Caused by a foreign body

b. Laryngismus stridulus, occurring in spasmophilic children, produces sudden attacks of dyspnoea

The cause of these attacks is adductor spasm. The attack will pass off and recur at varying intervals depending on the general condition of the child. To recognize this condition is of importance, not only from the standpoint of differential diagnosis, but that of treatment. In severe cases of laryngospasm intubation may be necessary

c. This same condition will occur in those cases of diphtheria that have been intubated and who auto-extubate themselves. Of course, these cases must be re-intubated immediately

Second—Those cases of acute hoarseness accompanied by dyspnoea, in a child, are usually indicative of acute inflammatory reaction within the larynx, and may be caused by diphtheria or an extension of an inflammation from the pharynx, such as acute tonsillitis, retropharyngeal abscess

Third—In hypertrophic laryngitis from any cause—tubercular, syphilitic or cancerous—hoarseness is usually the predominating symptom, with more or less dyspnoea, depending on several conditions: first, on the amount of obstruction in the air passage, second, the physical exertions of the individual, third, his general physical condition. In papillomata, the onset of hoarseness is gradual and of long duration

In diphtheritic stenosis following prolonged intubation, hoarseness or aphonia and dyspnoea may be varied in the degree of their intensity

Thymic pressure on the trachea manifests an increased inability to breathe and is usually accompanied by a certain amount of hoarseness or aphonia

Fourth—Cases of bronchial or tracheal diphtheria

These cases, as shown by Lynch, of New York, begin by having the formation of membrane within the bronchi or trachea and at the same time have none on the tonsils or larynx. This class of cases usually have dyspnoea as a predominating symptom, and may not have any hoarseness. Pallor and cyanosis are present in varying degrees

Fifth—Persistent cough of long standing accompanied by occasional foul expectoration and without definite physical signs in the chest, should make one suspect a foreign body

Of course, an X-ray examination should be of decided value, but even though negative, an endoscopic examination would not be contraindicated. There are a considerable number of cases reported of foreign bodies removed from the upper air passages that gave negative X-ray findings

Sixth—In those cases of bronchiectasis and abscess of the lung

Seventh—In those cases of dyspnoea and for which no ascertainable cause can be found

A compression stenosis of the trachea or bronchi may be found—due to external causes—enlarged thyroid, thymus, cervical abscess, etc

Eighth—Paroxysmal attacks of dyspnoea, with negative laryngeal findings, should make one suspect some condition, such as an obstructive lesion of the trachea or bronchi from without, as an aneurism, enlarged thymus, a growth from within—bronchial diphtheria, or as shown by Conner, of New York, to be due to a luetic involvement of the tracheobronchial tree

Early paroxysmal dyspnoea, while not pathognomonic of any of the above noted conditions, is characteristic of a beginning obstruction of the respiratory tract, and particularly of the trachea or larger bronchi

Stridulous breathing with negative laryngeal findings is characteristic of the above noted pathological conditions

Of course the above cited indications are of value, only after the usual methods of examination and diagnosis have been carried out, and pneumonia, fluid in the pleural cavity, acute dilatation of the heart, and other similar conditions that would give rise to cough and dyspnoea, have been differentiated

The pathological possibilities may be roughly classified under two heads, and briefly enumerated as follows

#### A AS AN OBSTRUCTIVE LESION OF THE LUMEN OF THE TUBE

##### 1 *Laryngopharynx*

Pharyngocele—that may be due to trauma or ulceration

Tumorous masses, whether polypoid, fibrous or osseous

Low retropharyngeal abscess

Enlarged epiglottis, that may be inflammatory, cystic, tubercular or syphilitic

Hemorrhage and the various inflammations

##### 2 *Larynx*

Edema, perilaryngeal abscess

Cancer, syphilis, tuberculosis and other productive inflammatory diseases, diphtheria, papillomata

Rare condition of pneumatocele—the fistula may be detected

##### 3 *Trachea*

Subglottic edema, acute tracheitis

Various conditions, such as papillomata, cystic and fibrous growths and diphtheria

Cicatricial contraction due to old inflammatory processes

Constriction of the trachea—just above the bifurcation seen in some tubercular cases

##### 4 *Bronchi*

Ulceration at the carina trachea

Bronchiectatic cavities Abscess of the lung with a loss in continuity of tissue, may be considered under this heading

##### Asthma

Irritating vapors, such a case was recently reported by Jackson and was due to the inhalation of nitric-acid fumes Chlorine and the various battle gases used in the highly modern and "humane" methods of warfare, produce marked irritation of the respiratory tract, and especially the bronchi Ammonia vapors act the same way

Fibrous bronchitis is most likely diphtheritic

#### B ALTERATION OF THE LUMEN OF THE TUBE FROM WITHOUT

##### *Larynx, trachea and bronchi*

Enlarged lymphatic glands, including peribronchial enlargement, cellular inflammation of the neck and various fibrous, sarcomatous and cystic tumors, produce serious secondary changes in the larynx and trachea Compression by an aneurism, enlarged thyroid and thymus glands With these tumor masses, there is likely to be a compression paralysis of the inferior laryngeal nerve and the accompanying symptoms of aphonia

#### ENDOSCOPY OF THE ŒSOPHAGUS

*Indications*—Aphagia, dysphagia, dyspnoea, and regurgitation of food, are objective symptoms and when confirmed with the pathological possibilities noted below, will assist in diagnosing an abnormal condition In the history of a given case, sudden dysphagia or aphagia with dyspnoea would very likely indicate a foreign body, while the same symptoms, being present in a more or less degree and coming on insidiously, would be more likely some pathological lesion

Regurgitation of food or difficulty in swallowing or in getting the food to stay down and without the symptoms of nausea and vomiting, would be indicative of stricture, diverticulum, spasmodic contraction or dilatation

*Pathological Possibilities*—The mechanical injury of the œsophagus caused by a foreign body or the swallowing of acid or caustic solutions and resulting in abscess or ulceration, are of frequent occurrence and require very careful and gentle manipulation in order not to make a bad condition much worse

Malformations, such as congenital or tracheo-œsophageal fistula are easy of detection with the œsophagoscope, and, while the older writers advise against a trial to sustain life—a rapid gastrostomy, done under local anesthesia, might be the means of prolonging life indefinitely in these infants

Cysts of the epiglottis have been reported to grow to such size, that they have not only oc-

cluded the pharynx, but being pedunculated, have been found with the œsophagus.

Along with this we learn from Luschka and Rokitsky, the remarkable cases of sacculations and dilatation of the œsophagus, reported in the older literature.

Authentic cases of rupture of the œsophagus are on record, that ended fatally in from eight to ten hours. Rupture of a healthy and undiseased œsophagus is a rare condition.

Emphysema of the neck following the entrance or removal of a foreign body, or following an endoscopic examination, indicates a loss of continuity of the tube and is usually fatal.

Constriction of the œsophagus either from within or without, by a carcinomatous growth, produces symptoms of obstruction.

Spasm of the œsophagus, and that at the larger end is spoken of as cardiospasm is a condition found pathologically that responds to treatment. Spasm of other parts of the œsophagus is spoken of as œsophagismus.

Intubation of the œsophagus has prolonged life and is to be thought of in some of the above noted conditions.

Globus hystericus œsophagismus in the limited number of cases of the writer's experience, is due to some pathological condition of the œsophagus—web or fissure in the region of the pharyngeal constriction.

**Diagnostic Considerations**—For diagnosis and where the procedure—laryngoscopy, bronchoscopy, and œsophagoscopy—is of necessity not prolonged, local anesthesia is usually sufficient in adults while in children the proper swathing and holding will be found satisfactory. The caliber of the tube cavity, under inspection is noted for any abnormality in size, while the appearance and general condition of the mucous membrane is being examined.

One must accustom oneself to a certain degree of illumination for the various instruments used, in order to differentiate the degrees of anaemia or congestion of the mucous lining of the tube.

The consideration and significance of secretions, excessive mucous, blood or pus are noted. They are not normally found in these localities, and very likely a continued inspection will reveal the seat of their origin.

These secretions may be mopped up or drawn out by suction and smears made for bacteriological examination, while a small piece of tissue, if abnormal to the locality under consideration, may be easily removed for histological examination.

Abnormal dilatation of the tube cavity under inspection, if in the bronchi, would indicate bronchiectasis or abscess.

Of course, the abnormal secretions incidental to the above named conditions would of necessity be noted.

In those instances in which the endoscope enters a short pouch in the œsophagus or where the lumen widens out, the diagnosis in the former instance would be a diverticulum, while in the latter, a dilatation.

We must remember the normal constrictions of the œsophagus and also the very good point that Jackson has called attention to, that is, the normal mucous membrane of the œsophagus closely resembles the mucous membrane of that individual's cheek.

In the trachea and bronchi, endoscopy under local anesthesia will demonstrate the condition more precisely than when under a general anesthetic, because of the incidental engorgement of the mucous membrane caused by the anesthesia and particularly, if ether by inhalation, is used.

No anesthesia is to be preferred if all the conditions permit.

The normal movement of the carina tracheæ is to be observed and is of value in diagnosing enlarged peribronchial glands.

There is one normal structure situated in the region of the pyriform sinuses, that on digital examination will simulate a long thin foreign body, such as a pin or a fishbone. This structure is the hyo epiglottic ligament.

Imaginary foreign bodies at times give a patient as much concern as though they were actually present.

Properly endoscoped these cases can be assured of their non existence.

### Conclusions

The more skillful the operator, the fewer will be the contraindications to any endoscopic examination. Continual practice of endoscopic procedures leads to a degree of dexterity that the occasional operator cannot attain. While the dramatic removal by a skilled operator of a foreign body may lead a great many occasional operators to feel that they, too, can do the same thing the usual outcome however, is not so successful.

Endoscopic examinations aside from the search for foreign bodies is a very important aid to our diagnostic methods for it is an exact and precise procedure.

It is more difficult in some of its aspects than the removal of foreign bodies and requires more practice but the end results are very definite. One can indicate, accurately, by sense of sight, that a lesion is or is not present.

These procedures should be made use of by all those concerned in the diagnosis and treatment of diseases of the upper air passages and œsophagus, and it is with this notion, that this paper is presented before the Society for its consideration and discussion.



## THE ADVANTAGES OF EVISCERATION OVER ENUCLEATION\*

By WALTER BAER WEIDLER, M.D.,  
NEW YORK CITY

THERE seems to be such a diversity of opinion in regard to the relative value and safety of evisceration and enucleation, that a free discussion of the subject cannot fail to be helpful to all

Evisceration was at first regarded by most operators as a difficult and dangerous operation. The dread of sympathetic ophthalmia following evisceration has been the chief reason that can be found for the great fear and reluctance in the mind of the surgeon to perform this operation.

From my search of the literature and the answers I have received from the one hundred post cards sent to American Ophthalmic Surgeons, there should no longer be any doubt as to the freedom from meningitis and death, or of the danger of sympathetic ophthalmia after evisceration of the sclera.

The various modifications of the simple enucleation that have been suggested, such as the sewing together of the muscles, or the sewing together of the muscles, tenons capsule and the conjunctiva, often fail to provide a good, movable stump.

I do not refer to any of the operations with implantation of fat, of sponge, of a glass or a gold ball, or any of the various substances that have been used. In the hands of some operators, one or another of the various implants have given very good results. They are not without a certain amount of danger, as a number of cases of sympathetic ophthalmia have followed these operations.

De Schweinitz in his paper entitled "The Comparative Value of Enucleation and the Operations Which have followed It" read before the Thirteenth International Congress of Medicine, in Paris, August, 1900, advocated enucleation for the following conditions:

- 1 In all eyes so diseased or injured that they have already excited sympathetic ophthalmia
- 2 In eyes that contain a malignant growth
- 3 In eyes in which a suppurative process has begun, providing the process has not involved the surrounding orbital tissues
- 4 In eyes so wounded that they are likely to cause sympathetic ophthalmia, if two weeks or more have elapsed since the time of injury, and if there is great laceration of the sclera
- 5 In eyes that are greatly shrunk (excessive phthisis bulbi)
- 6 The eyes of very old people

The frequency of meningitis following enucleation was conclusively shown in a paper by

Nettleship (Trans Opt Society U K Vol VII) who reported thirty cases of meningitis following enucleation with death in twenty-six of the cases. To this number must be added twenty-two additional cases reported by de Schweinitz with death in all of the cases.

Of these fifty-two cases of meningitis, it is fair to conclude that a very large number were the direct result of the enucleation. A number of these cases had had a perforating wound of the eye, which in itself could have started the meningitis, but it is doubtful if any of these cases would have gone on to meningitis if the enucleation had not been performed.

As has been stated, the chief objection that has been advanced against evisceration of the sclera, has been the danger of sympathetic irritation or sympathetic inflammation. The other disadvantages brought forward against this operation have been:

- 1 Great reaction causing a prolonged stay in the hospital
- 2 A painful stump which must later be removed
- 3 Sloughing of the sclera

The excessive reaction and the prolonged stay in the hospital should not be of great moment. We have seen very great reaction following enucleation where the cutting off of the optic nerve was not cleanly done, and where there was profuse hæmorrhage and great ecchymosis following. The prolonged stay in the hospital would not be a factor if the patient can be assured that he is going to have a good, movable stump after evisceration.

The painful stump that is reported to follow evisceration must be exceedingly rare. De Schweinitz reports one case in which he removed the scleral stump seven months later.

Sloughing of the stump has been four times reported, but I have no personal knowledge of it ever occurring.

Enucleation has been called "the fool proof operation." But this is not a safe attitude to assume toward any operation.

If our cases are carefully analyzed before we operate, I do not think the fear which so many surgeons seem to have of evisceration need exist.

In all cases of sympathetic ophthalmia reported following evisceration, which were investigated by Nettleship and de Schweinitz, both of these authors concluded that not a single case could be considered as being the result of the operation.

In the answers received, one of the writers made a report of a case of sympathetic irritation following evisceration. There have been a goodly number of cases of sympathetic ophthalmia following enucleation.

It is always a difficult question to decide whether or not the sympathetic disease was

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 24, 1920.

caused by the diseased or injured eye, or the result of the operation performed for its removal.

In a certain number of these cases, it must be true that sympathetic inflammation had started and the enucleation failed to halt the progress of the disease.

There are well defined indications for enucleation and for evisceration.

Beard says that enucleation is indicated in all instances where it has been the custom to make enucleation, save where exists sympathetic ophthalmia, a malignant tumor of the globe, or phthisis so advanced that only a tiny, shapeless ball remains. He further states that he would not even except those in which sympathetic trouble is impending, nor in those where it is already threatened but for the popular prejudice of the profession.

If it is possible to classify the cases best suited for evisceration, the following suggestions may be of value.

*First* In all cases of panophthalmitis, early or late.

*Second* In all cases of staphyloma of the globe, where Critchett's operation is not possible.

*Third* In all cases of painful blind, glaucomatous eyes.

*Fourth* In all cases of chronic non traumatic irido-cyclitis where an operation is indicated.

*Fifth* (a) In all eyes beginning to shrink and in phthisis bulbi not reduced below one-half the normal size of the globe. (b) In cases of phthisis bulbi, with a bony choroid where it is possible to shell out the bony growth cleanly and freely (Kinney).

*Sixth* In all injured eyes where there has not been too great a laceration of the ciliary body and the sclera.

*Seventh* In badly injured eyes where there is the possibility of sympathetic inflammation, provided the operation is done within ten days or two weeks after the injury (de Schweinitz).

*Operation for Evisceration* The earliest form of evisceration was that devised by Noyes in 1874 which was later advocated by Von Graefe. The operation was done to avoid the risk of purulent meningitis a complication that had occurred in two of Graefe's cases.

Gifford referred to Graefe's operation as evisceration combined with keratectomy.

In the operation devised by Gifford, the excision of the cornea is omitted. Gifford makes his evisceration through a simple horizontal incision and he found that this form of an operation gave very much less reaction and assured a better stump.

Beard has modified the Gifford operation by making a vertical incision through the ciliary zone and corner instead of a horizontal one thus preventing the folding and flattening which

follows the horizontal incision. Further description of the operation may be found in Beard's Text Book on the Surgery of the Eye, page 413.

The Hall-Husinger-Dimitry (*Southern Medical Journal* November 16, 1906) operation was recommended so as to remove all the possibilities of sympathetic inflammation that had been reported to have followed evisceration.

Briefly this operation is as follows:

1 Free conjunctive at corneal scleral margin, undermine conjunctiva back on globe to recti-muscles.

2 Resect anterior quarter of the globe, using catrict knife and scissors.

3 A V-shaped section is cut out from the sclera above and below to avoid puckering.

4 Contents of the globe removed with a Bunge spoon, cavity washed with bichloride of mercury solution.

5 A window about 8-10 mm in size is cut out of the sclera including about 2 mm of the optic nerve.

6 Scleral suture is inserted through outer portion of the conjunctiva into the center of the sclera across the window, through the inner portion of the sclera and conjunctiva. This suture is then tied and two other conjunctival sutures may be made if thought necessary. Sutures removed in ten days. Prothesis inserted in ten days.

*Advantages claimed.* Elimination of the many unsurgical principles of enucleation, it leaves all the muscles in place, removes all tissues that may cause or be the medium of transfer of sympathetic ophthalmia, i. e., the ciliary neural and vascular circle and the optic nerve.

*CASE REPORT 1.* Mr. A. C. ret 35 was struck in the right eye by a piece of flying wood. The eye was not seen until one week after the accident. There was at that time a well advanced panophthalmitis. Patient was admitted to the Manhattan Eye and Ear Hospital and one week later an evisceration of the sclera was performed. There was some reaction but not as much as I had expected. He left the hospital about ten days after the operation. Three weeks later a glass eye was secured and worn with perfect comfort. Six months later there is very excellent motion of the eye so that it is difficult to tell which is the artificial eye.

*Operation.* Keratectomy with evisceration.

*CASE REPORT 2.* Mrs. G. S. ret 60—Patient has had a chronic glaucoma for years. Left eye was trephined but eye did not do well and operation was followed by a plastic irido-cyclitis. Later the eye became painful and vision was reduced to light perception. Evisceration was done followed by severe reaction which promptly subsided under ice compresses. Patient left the hospital in ten days but cosmetic appearance is not so good as in case number one because of the previous absorption of fat due to the patient's age.

*Operation.* Keratectomy with evisceration.

*CASE REPORT 3.* Mrs. M. ret 30—Had tubercular irido-cyclitis for past six years. Several iridectomies had been done. The eye presented the following

features at the time of operation, anterior chamber shallow, complete annular synechia, lens cataractous and the eyeball becoming quadrate and shrunken. Evisceration was done with little reaction following. Discharged from the hospital in nine days. Six months later the stump is about one-third the size of the normal globe, motion good.

#### Operation Keratectomy with evisceration

CASE REPORT 4 Mr C S aet 50, was struck in right eye with a piece of dirty metal. The foreign body did not enter the eye. An iridectomy was done and a complete conjunctival flap made. The wound closed and the eye recovered without infection. Irritation remained after seven weeks with some flattening and shrinking. Evisceration was advised and performed. There was considerable reaction which subsided after the use of ice compresses. Left hospital seven days after operation.

#### Operation Keratectomy with evisceration

These are the answers received from the one hundred post-cards sent out with the following

DEAR DOCTOR

I am preparing a paper entitled "Advantages of Evisceration Over Enucleation" to be read before the New York State Medical Society on March 24th, 1920.

I am anxious to get your opinion as to the relative safety of these two operations. If you will be kind enough to fill out the attached post-card it will be of great value to me in arriving at a just conclusion from the opinion obtained.

Very cordially,

WALTER BAER WEIDLER.

1 What is the operation of choice with you, enucleation or evisceration, without implantation into the sclera? Why? (a) When would you enucleate?

2 (b) When would you eviscerate?

3 What in your opinion is the risk of meningitis?

4 What in your opinion is the risk of sympathetic inflammation?

Name	1	2	3	4
Aling, A N	Enucleation with fat implantation	.	No experience	Occurs after evisceration
Alger, Ellice	Enucleation	(a) (b) Theoretically evisceration is contra-indicated in panophthalmitis	Very slight	Depends upon operator's skill
Ball, J M	Enucleation	(a) (b)	None seen	None seen
Bell, A J	Enucleation with fat implantation		None	One case after implantation
Brown, E V L	Enucleation	Enucleate in all cases except orbital cellulitis	Exaggerated	Definite danger
Chance, B	Enucleation or Dimtry's operation	(a) Phthisical bulbi, suspected SO, extensive laceration. Ciliary region involved. (b) Perforated wounds, staphylococci cornea	No cases seen	No cases seen
Elliott, E C	Enucleation	Always except in panophthalmitis	One doubtful case after evisceration	No cases
Greenwood, A	Enucleation whenever possible. Implantation of glass ball	(a) Whenever possible (b) Panophthalmitis	Slight	Practically no risk
Holt, E E	Safer, equally as good	(a) Always (b)	None in my experience	None in enucleation. Sympathetic irritation with evisceration
Howe, L	Enucleation	(a) Always except, (b) When eye is free from infection, and for cosmetic results	One case	No SO after either operation
Harlan, H	Enucleation with implantation of glass ball	(a) (b) Has not eviscerated for two years	Very little	None
Hansell, H F	Enucleation with implantation of glass ball		Slight	None if No 1 is followed

Name	1	2	3	4
Jackson E.	Enucleation except in panophthalmitis	(a) For tumors, globe generally diseased, to prevent SO acute panophthalmitis (b) Absolute glaucoma when enucleation is refused after injury	Slight for either operation	Greater for evisceration
Kennon, B R	Evisceration	(a) When there is sympathetic ophthalmia or irritation (b) Practically all other cases	Negligible in either operation	All removed
Lancaster, W B	Enucleation with fat implantation. Evisceration with glass or gold ball preferred to evisceration without implantation unless panophthalmitis is present	(a) No special rule (b) Panophthalmitis	Negligible in either operation	Negligible in either operation
Marlow, F A	Always enucleates			
Ohly, J H	Enucleation	Always enucleates	Practically no risk one case of meningitis after enucleation	None seen
Payne S M	Evisceration	(a) Malignant cases (b) Injured eyes panophthalmitis plastic iridocyclitis choroiditis	Less risk in evisceration	No more risks after evisceration
Posey, W E	No complications, Mule's operation	(a) Cyclitis or sympathetic involvement of fellow eye	None seen after Mule's operation or implantation into capsule	None seen after Mule's operation or implantation into capsule
Radcliffe M	Enucleation	(a) Enucleate if disease is limited to globe (b) Eviscerate if disease has extended	No cases	No cases
Reese R G	Enucleation with gold ball implantation	(a) Atrophy of globe (b) Lacerations of ciliary zone	None	None if portion of nerve is removed. Non-suppurative cases
Randall B A	Enucleation	(a) Usually (b) For cosmetic results	Slightly enhanced	Less if posterior segment is removed
Shumway E A		(a) (b) Acute panophthalmitis	None seen but consider evisceration safer	
Sweet W M	Enucleation with implantation	(a) (b) Panophthalmitis	One case after enucleation for panophthalmitis	No cases
Snell A C	Evisceration when possible	(a) Panophthalmitis intraocular growths aged signs of sympathetic inflammation (b) All other cases	None	None dangers of SO in evisceration
Schwenk P N	Enucleation	(a) Old injuries (b) Acute injuries	Rare	When there is a cicatrix of ciliary zone
Spalding J A	Enucleation	(a) Every time (b) Never	None seen	None seen

Name	1	2	3	4
Sueren, E	Enucleation with fat implantation	(a) (b) Does not favor		
Sutphen, T Y	Enucleation	(a) (b) Eye free from disease back of ciliary zone	None seen	
Taylor, L H	Enucleation	(a) Any time (b)	Practically none	None from enucleation
Thorington, M T	Enucleation generally		Practically nil	Clean operation, never occurs
Thomson, E S	Enucleation	(a) All cases, but (b) panophthalmitis	None seen	None seen
Vail, D I	Enucleation	(a) Blind eye dangerous to fellow eye, painful and hopeless eye (b)	Slight	Possible
Verhoeff, F H	Enucleation	(a) (b)	Neghligible	Greater after evisceration
Wescott, C D	Enucleation	(a) All inflammatory cases and intra-ocular tumors (b) Recent trauma, or when globe has been destroyed	Very slight	
Wilder, W H	Enucleation	(a) Most cases (b) Threatened panophthalmitis	Considerable in enucleation	None from enucleation, very few from evisceration
Woods, H	Enucleation		None seen	No greater after evisceration
Wheeler, J M	Enucleation with implantation	(a) (b) Panophthalmitis	Slight	Slight
Wootten, H W	Sometimes one, sometimes the other	(a) All cases, but (b) panophthalmitis	None seen	None seen
Zentmayer, W	Enucleation	(a) (b) No longer	Very slight	Very slight
Ziegler, S L	Enucleation with implantation	(a) Well known (b) Panophthalmitis, selected cases would do Gifford's operation modified by Poulard with implantation	One case from lime-burn injury	None seen
Kinney C W	Evisceration	(a) Intra-ocular tumors, incipient SO (b) Panophthalmitis, partially shrunken globe, bony choroid if possible to remove bone	After enucleation frequent	None seen
Black, N	Evisceration, better stump, less sinking of upper lid	(a) Shrunken eye, suspected tumor, quick recovery (b) Acute panophthalmitis, all cases without any contra-indications	Less after evisceration	Less after evisceration
Unknown	Enucleation		Neghligible	Enucleation no risk

NOTE These answers have been abbreviated and in some cases interpreted by the author of the paper

# CLASSIFICATION OF THE FOURTEEN ANSWERS

	1	2	3	4
Prefers enucleation	Prefers enucleation with implantation	Prefers evisceration	What in your opinion is the risk of meningitis?	What in your opinion is the risk of sympathetic inflammation?
26	12	5	None seen—18 Doubtful—1 Slight—14 Seen after enucleation—4 Negligible—4 Considerable—1	None seen—34 Doubtful—0 Slight—3 Seen—1 Sympathetic irritation—1 Negligible—1 Possible—3

## CONCLUSIONS

Advantages that may be claimed for evisceration

1 Evisceration because it can be performed in all cases of panophthalmitis, thus eliminating the possibility of meningitis and death. It also reduces by weeks the period of the convalescence in our cases of panophthalmitis.

2 Evisceration undoubtedly gives a better movable stump for the glass eye.

It will also prevent to a great degree the sinking in of the upper lid.

3 It has been my experience that many patients, who have eyes that are or may at some future time be a menace to the fellow eye, will permit the operation of evisceration to be performed when they are told that the eyeball is not to be taken out, who would otherwise refuse enucleation.

4 There is much less possibility of the formation of troublesome granulations of the stump. There is much less annoyance from secretion in the orbit after evisceration.

## THE PRACTICE OF PSYCHO-ANALYSIS \*

By C P OBERNDORF, M.D.,  
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**P**SYCHO-ANALYSIS as perhaps no other therapeutic procedure in the history of medicine has suffered a surplus of misrepresentative popularization notably in the periodical lay press, and to a lesser degree on the stage and screen. The reason is not difficult to appreciate, for dealing as it does with motives of human conduct its application is ubiquitous. In the consideration of all our social relationships we are apt to search for the motives prompting the attitude and purpose of other individuals, and as psycho analysis invokes the influence of the unconscious and aims to render less obscure some of these phenomena of thought and action which cannot be satisfactorily explained on any conscious ground, it goes a step beyond the customary investigations. Thus, it naturally becomes a fascinating field even for the layman.

Furthermore, many a person appreciating the pertinency to an instance in his own life of some particular example in a general magazine article which he happens to read is eager to consume fresh psycho analytic prabulum sufficiently light for his mental digestion. To appease this appetite popular analytic literature, especially seasoned to such tastes, is being liberally produced. However, notwithstanding the many erroneous impressions circulated by such literature the popularization of psycho-analysis has, I think, reacted advantageously to the problem of mental hygiene. It has acutely attracted the attention of the laity, not to mention a considerable proportion of sluggishly dormant medical men to the vast possibilities of mental medicine.

## SCOPE OF PSYCHO-ANALYSIS

Nevertheless it is a far cry from a superficial smattering of psycho analytic terms to the intelligent application of psycho-analysis for the correction of abnormalities of function, whether these be confined to tangible physical manifestations, as in conversion hysteria or to the field of mentation, as in obsessive fears. There is even indeed, a very definite distinction between the approach of psychiatric problems in an advisory capacity from a psycho analytic standpoint, and the analysis of a patient so that he may independently determine upon a course of action. Contrary to a very prevalent opinion, the psycho analyst offers little advice to the patient. He assumes the position that the predicament in which the patient finds himself exists because of previous impressions which have unconsciously and unremittently influenced the patient's mode of conduct until the abnormal condition for which he seeks treatment has been sequentially developed. The analyst aims to unravel these impressions, and when he has made them perfectly clear in the consciousness of the patient, allows the latter complete freedom of choice as to his further course.

The study of the patient's personality may have led the analyst to definite conclusions as to the patient's needs when viewed objectively. But the analyst should not attempt to impose such opinions upon the patient in order to assist him. For example, it might be the analyst's opinion

that an intellectually precocious mother-coddled youth would derive greater benefits from a six months' sojourn on a western ranch than the same period of time spent in one of the luxurious Harvard dormitories. Instead of advising ranch life the analyst would gradually undermine the inhibitions and resistance of the patient to a virile outdoor life so disagreeable to him, until he would spontaneously find himself drifting into ranch life or something equivalent.

On the other hand, if the analyst is forced to undertake counseling, as he is sometimes compelled to do at the outset of treatment, the advice should be guarded—rather the suggestion of a suggestion than advice.

Eventually, the facts which psycho-analysis has established will be influential in developing a more intelligent attitude toward childhood activities on the part of educational authorities and a more sympathetic understanding in the shaping of school curricula. However, the whole character of the questions raised in this pedagogic field are such that they may be best entrusted to the hands of psychiatrically trained medical men. Even at the present time pre-eminent skilled psychiatrists, such as Macfie Campbell, of Baltimore, consider it profitable to expend a considerable proportion of their energies in co-operating with teachers toward the elucidation of vexing educational problems in individual pupils. So, too, as a result of psycho-analytic studies, the social activities of childhood, which have been hitherto ignored by physicians as well as educators unless grossly abnormal, will doubtless receive a certain amount of understanding guidance, instead of being permitted to blunder blindly to some indefinite goal which frequently results in catastrophe.

#### SELECTION OF CASES

In pathological conditions the discrimination of the type of case suitable for psycho-analysis is extremely delicate. In the first place, the differentiation of psycho-genetic from organic conditions is at times the most vexing proposition encountered in medicine. The keenest men in the practice of neurology would probably admit that they have erred both ways. Instances have come under my personal observation where a case diagnosed hysteria suddenly died of what proved after death to be a tumor of the fourth ventricle and a suspected tumor of the thalamus with a left hemiplegia and hemianæsthesia unexpectedly regained her power sufficiently to make a precipitate exit from the hospital, entirely unassisted, just before a proposed trepan. The point I wish to emphasize is that we should be absolutely certain that the malady is functional before attempting psycho-analytic treatment. Even in conditions where the physical complaints are not apparently serious such as polyuria,

insomnia, indigestion, etc., the selection of cases requires great discernment.

In cases where the disorder is confined to mentation with slight physical symptoms, insight on the part of the patient is essential for a therapeutic analysis. Most psycho-neuroses are accompanied by a certain amount of mental depression, and the differentiations between such incidental dejection and depression of the manic-depressive type (Kraepelin) is not always simple, and, of course, the patient has insight in both maladies. During the period of active depression in a manic-depressive psychosis, psycho-analysis is not only ineffective but is apt, through intensifying the depression, to retard recovery. Psycho-analysis undertaken during the interval of manic-depressive attacks as a prophylactic measure against recurrence (L. Pierce Clark) seems reasonably valid in certain types of recurrent depressions. Proof of its efficacy, however, must, because of the normally intermittent course of this form of psychosis, long remain in doubt.

The approximation of some of the symptoms of the neuroses to the dementia precox group is occasionally so gradual that even the experienced psychiatrist may for some time be in doubt. In such cases, a re-education of the patient based upon the psycho-analytic knowledge of the physician is preferable to a true analysis. Where a definite paranoid trend exists the outlook is unfavorable.

#### PSYCHO-ANALYSIS BY LAYMEN

It is necessary to again call attention to the fact that psycho-analysis was presented to the world by a well trained neurologist as a result of years of labor with strictly medical problems, and has never been advanced by him as a panacea for all the mental ills of humanity. The competent psychiatrist soon discerns evident limitations in its therapeutic application and restricts his activities within these borders.

Within the past few years, however, many persons of varying character, qualifications, and intelligence, from a casual reading acquaintance with the subject, or because they have been partially analyzed, have assumed to analyze others with therapeutic aims. Even the analysis of a normal person is not without a certain amount of danger to that individual if performed by one unskilled in the method. In pathological conditions the practice of psycho-analysis by the layman is without defense.

The psycho-analyst is constantly drawing on his medical knowledge, not only in making decisions between functional and organic symptoms as they arise during the course of the treatment but in clearing up all sorts of physiological misconceptions which have been interwoven in the patient's mind and influence his conduct. Thus, in one of the most benign conversion hysterias

I have ever treated, namely, recurrent headaches not sufficient to incapacitate the patient in business or socially, the curing of this symptom by psychoanalysis involved a thorough knowledge of the pathology of syphilis of the central nervous system, the inheritance of syphilis, the physiology of parturition and the physical effects of the prevention of conception. Certainly no layman could have satisfactorily handled these phases of the analysis because an intelligent comprehension of cerebro spinal syphilis, to mention only one of the items, can be acquired only through prolonged observation of the disease and involves a knowledge of physiology and anatomy.

It has been proposed by some (Jung, Jelliffe) that such deficiencies in the layman might be overcome by the utilization of a lay assistant who would be constantly in consultation with a medically trained analyst. Quite aside from the technical question of transference which militates against such an arrangement, comes the practical one of finding a lay person with sufficient temerity to attempt the therapeutic analysis of others, and at the same time possessed of sufficient insight to recognize his own limitation of knowledge.

#### CRITICISM OF PSYCHO-ANALYSIS

Apparently, however psycho-analysis itself under the most approved medical auspices, quite aside from the lay application, is in need of defense notwithstanding the fact that many physicians of varied personality have successfully employed this technique therapeutically. Adverse criticism is usually founded on the following bases: (1) Failure of the method after trial by the critic, (2) The expense of the treatment, (3) The significance attached to dreams, (4) The failure of symbolism, and (5) The overemphasis of sex as a factor.

In regard to the failure of the method at the hands of competent psychiatrists one may confidently respond that this is often due to lack of familiarity with the technique. On the other hand most psychoanalysts have had considerable experience with the methods of the older school (Kraepelinian system). They had found that the therapeutic outlook with the measures available under this system is largely hopeless, unless the diseases (such as alcoholic, infective exhaustive and manic-depressive psychoses) were in their very nature self-limited. Speaking from personal experience, after practicing psychoanalysis continuously in selected cases for about eight years, I can assert that while the results were not unqualifiedly successful in each instance they were infinitely more satisfactory than I have ever encountered or read recorded in similar mental afflictions by previous methods.

The most gratifying cures were achieved in adolescents on whom one recent opponent of psychoanalysis would "advocate a law to pre-

vent the employment."<sup>1</sup> As a matter of fact, persons beyond 35 years of age are because of their mental rigidity, generally speaking, not favorable subjects for this procedure.

The point of the expense of psychoanalysis as a treatment is often raised in disparagement, and is also the reason assigned by some few analysts in defense of the use of lay assistants. Naturally, the question of expense does not concern either the efficacy or the theoretical correctness of the procedure. It has only to do with the practicability of application, and it must be admitted that the length of time required for each patient (preferably one hour) limits the number of persons which it is possible for the physician to see in a day. Psychoanalysis is expensive in this sense, far too expensive ever to be adopted by the psychiatrist who has been in the habit of treating his patients in rapid succession by the application of electrical currents or with hypodermic injections. Moreover, inasmuch as psychoanalysis requires the personal attention of the physician it will not appeal to the psychiatrist whose main interest has been in consultation and diagnosis but who has relegated the treatment of his patient substantially to an assistant.

However, even from the patient's point of view psychoanalysis is not an excessively expensive treatment, inasmuch as the cost at the hands of a competent physician is up to average less than a second-rate sanitarium. If the patient remains at work as he usually does, the disbursement is insignificant as compared with that entailed by any disease, such as typhoid fever, a compound fracture, or an empyema, requiring long treatment in a general hospital.

In regard to the Freudian interpretation of dreams certainly few psychoanalysts would argue that the final word has been uttered about dreams or their meaning. Many commentators doubt the correctness of the Freudian interpretation of a wish object in each dream. Some concede the general Freudian view that dreams are an "ungoverned replica of waking thought, but with a wider horizon of memory."<sup>1</sup> While it is not my intention to enter a discussion of the vexing dream problem, I do wish to point out that Freud was one of the first psychiatrists to appreciate the value of this phenomenon and attempt to utilize it for a more comprehensive investigation of the patient's unconscious mind. His technique seems to unravel these bizarre, untrammelled memory associations.

It is claimed occasionally that dreams are "easily explicable by the normal anticipations of the mind."<sup>1</sup> This may possibly apply to some few dreams, especially those of children. However in the usual and more complicated dream, such as is commonly recorded by the ordinary person not even a hint as to its possible signifi-



cance can be ascertained until after it has been unfolded according to the intricate technique of psycho-analysis, and some such technique one must continue to employ, in spite of its tedium, until a simpler but equally satisfactory method is developed. It is to be hoped that the future will see some curtailment of the procedure of dream analysis.

The well-riddled target of symbolism, advanced by the Freudian school, frequently receives fresh shafts of attack. There seems to be a general impression that symbolism is something which the Freudians consider to be elaborated by the unconscious mind. However, quite the contrary of this contention is true. Each symbol, even in dream or waking life, is considered as a particular symbol for that patient, perceived during full consciousness. It exists as a purely individualistic symbolism which might not connote a similar idea to any other living person, and for this very reason seems ridiculous when related to a second person.

Finally, the fact is often overlooked, that hunger, along with love, is considered by Freud one of the great primary driving forces which exerts full power in directing our manifold subsequent activities. The close association of sex and hunger in early infantile impressions seems to me to be well proven by numerous examples revealed by neurotic adults.

#### CASES SUITABLE FOR ANALYSIS

As a curative measure psycho-analysis is most promising in cases of psychoneuroses in intelligent persons between the ages of 15 and 35. As regards age this dictum is by no means absolute, and depends more particularly on the mental plasticity of the patient, for with individuals, as with races, age is not necessarily accompanied by evolution from primitive modes of thinking. Although the psychoneurosis is paramountly a mental disorder found among the intelligent and educated, it is occasionally encountered in those who are unable to grasp the methods and aims of analysis. In such persons treatment must be attempted by other methods, such as suggestion, hypnosis or persuasion. For obvious reasons the native language of the patient should preferably be that of the examiner.

Any physical basis for the complaint must naturally be carefully excluded, and preferably corroborated by other physicians. It is also desirable that patient and physician be total strangers before the commencement of the analysis, in order that the impersonal attitude in the treatment may not be influenced by previous relationships. While it is not impossible to effectually analyze a person with whom one has been previously intimately acquainted, it is a distinct handicap both for analyst and patient. Social association with the analyst, so often tentatively essayed by the patient during

the course of his treatment, only eventually contributes obstacles to progress in the analysis if permitted to occur.

The patient should be so situated that he can devote not less than three hours a week for three months or more. A frank understanding, before any treatment is undertaken, as to both its nature and the results obtainable, proves far more satisfactory to physician and patient alike in the end. A positive cure should never be offered, although a definite improvement may be confidently expected.

So, too, predictions concerning the length of the treatment can only be vaguely ventured, for it is almost impossible until analysis has progressed for some time to gauge the extent and tenacity of the patient's thought ramifications and the strength of his resistances. After analysis, it is not uncommon for a patient to make some remark of this nature, "I now know that I did not want to get well, because while I was sick my husband took care of everything," or, "I have held on so to the belief that I wouldn't get well that now I can't believe that I will get well."

The question has been raised as to the validity or necessity for specialization in psycho-analysis (Dana). The attitude of impartiality and impersonality in psycho-analysis differs so essentially from the directing and advising standpoint assumed by and expected of the practitioner in any other branch of medicine, that it would be almost impossible for the physician in the habit of using the latter method, to alternate his attitude from hour to hour with sufficient certainty to assure his success either as an analyst or a director.

Moreover, the technique of psycho-analysis is slowly acquired and must be constantly practised for the attainment of efficient skill. To attain success requires a thorough working knowledge of abnormal psychology and especially Freud's theories. The best avenue of approach to psycho-analytic proficiency undoubtedly leads through established fields of psychiatry with detailed study of dementia præcox and manic-depressive cases. In dilapidated præcokes the mechanisms are often so evident, that little analysis is required. The second way of approach is through the field of normal psychology and in this direction nothing is so valuable, I may say essential, to the analyst as an analysis of himself at the hands of another. In addition to his technical equipment, the utmost patience on the part of the physician is necessary, for any attempt to hasten the revelation of material to be utilized in the analysis has merely the effect of increasing resistances.

Psycho-analysis has been referred to as mental orthopedics (Regis) and assuredly no orthopedist finds it necessary to proceed more guardedly or gradually with his problem of warped bones than the psycho-analyst does with the distorted and

tender minds with which he deals. Nevertheless, there is an ever augmenting list of therapeutic successes reported by trustworthy men treating phobias of various kinds, hysterical manifestations and neuroses, which verify the value of Freudian procedures after the prolonged use of routine neurological methods has failed. In conclusion I can only reiterate that the more experienced one becomes in analytic work the more firm grows the conviction that no short cut to permanent and effectual analytic treatment exists.

## SPINAL CONCUSSION WITH REPORT OF A CASE \*

By LOUIS CASAMAJOR, M.A., M.D.,  
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IN the medical literature of twenty years ago and more, one finds frequent references to the question whether the spinal cord functions may be seriously disturbed as the result of a trauma which does not cause gross injury to the vertebrae. Among the cases reported one finds many conditions, and not the least among them are the frank hysterias, the traumatic neuroses and the so-called "railway spine." To another group of cases where true signs of organic cord lesion were present, the name "Spinal Concussion" was applied and not a little experimental work was done to prove the real nature of this condition. In recent years the subject has been rather neglected although neurologists have observed cases of animals, usually dogs and cats, which, after having been run over develop signs of local transverse lesions in the spinal cord that disappear completely in a few days to a few months. Such cases call for explanation and raise the question of whether a like thing can happen in the human.

Spiller in 1899 reported the case of a cat which had been caught in a heavy swinging door. There was complete paraplegia with anesthesia of the hind legs and tail. On autopsy two hours after the injury, the spine was found uninjured and there were no evidences of crush or hemorrhage of the cord. Four years later the same author reported a similar condition in a man who fell about eight feet and landed on his face. This occurred during the night and the patient was found in this position, unconscious, the next morning. On the second day after the accident he was conscious. His bladder and rectal control were lost and there was very little voluntary motion in the lower limbs. Voluntary movements at the elbows and shoulders were much impaired and completely lost in the hands. The sensory changes were interesting. Touch was normal throughout, but pain and temperature were much impaired up to the base of the neck,

including the arms. The knee jerks are reported as normal and equal at this time. On the seventh day the right knee jerk was diminished and the left absent, and there was a positive Babinski on each side. On the fourteenth day the patient could move his legs and toes freely while in bed. The knee jerks were much diminished but equal. Touch sensation was normal all over. Temperature sensation diminished up to his clavicle on both sides while the pain sensation had returned to the legs below the knee and to the anterior surface of the right thigh. He had more muscular power in the movements at the shoulders and elbows, but could not move the hands. On the thirtieth day there was noted feeble flexion and extension of the hands and fingers. He died on the thirty-eighth day, the cause of death was not stated. On autopsy there was found no fracture or other lesion of the vertebrae, no hemorrhage in or crush of the cord. However there was found a diffuse area of softening extending through the fourth and fifth cervical segments with definite signs of ascending and descending tract degenerations from this point. In this case there was a definite transverse myelitis without crush or hemorrhage following a trauma which did not injure the spine.

Prior to Spiller's reports, Schmorl and Kirchner produced spinal cord concussion experimentally in animals. The method employed was to place a board over the animal's spine and strike it sharply with a hammer. The latter author gives detailed reports of his experiments. He used rabbits and, placing the small board on the spine over the lumbar enlargement of the cord, he struck it sharply with a hammer. After the second or third blow there was a definite convulsive spasm in the hind legs. The hammer blows on the board were continued until the hind legs were completely paralyzed. This paralysis lasted from five minutes to half an hour. The six rabbits were killed six to fourteen days after the injury. The spine was found uninjured. There was no hemorrhage in or crush of the cord. In the lumbar enlargements, Marchi stains showed some degeneration of the white fibers.

In a later series of experiments the same author carried his trauma still further. One rabbit received three sharp blows on a board over the lumbar enlargement on three successive days. There were convulsive phenomena in the hind legs on each day and, after the third, a paresis of the hind legs which lasted five minutes. The rabbit was killed on the sixteenth day. No gross lesion was observed. The other rabbit received still more severe concussion over a period of seven days. This resulted in a paresis of the hind legs more marked on the right. The reflexes were increased more so on the right. On autopsy fifteen days after the last trauma there was no gross lesion either of the spine or the cord. Marchi stains showed a diffuse degeneration in

the white matter of the lumbar enlargement and some ascending and descending tract degenerations from this point. Nissl stains showed some degeneration in the cells of the lumbar enlargement but practically none in the rest of the cord.

In these rabbits we see clearly the possibility of degenerative lesions of varying severity due to concussion of the cord without gross injury. In the case reported here, the author offers the possibility that something of a similar nature occurred, probably comparable to that which was seen in the less severely concussed of Kirchgasser's rabbits.

The patient was admitted to No. 1 General Hospital B. E. F. on August 21, 1917, with the history that he had been buried as the result of a shell explosion on August 19th. He recovered consciousness in the Field Ambulance dressing station. His neck was extremely painful and he could not move his head on account of this pain. Both arms and hands were completely paralyzed and anæsthetic, and he could control the movements of his legs very little. There was no paralysis of the bladder or rectal sphincter. His legs had been getting stronger but he could not stand or move his arms or hands at all. Physical examination on admission showed normal pupils and some slight nystagmus on looking to the left. Other cranial nerves were normal. The neck was stiff and could not be moved either actively or passively on account of pain. X-Ray showed no fracture or dislocation in cervical or upper thoracic spine. The right arm was in a state of complete flaccid paralysis while the left showed some voluntary motion of the shoulder and arm muscles but not enough to move a joint. There was double drop-wrist and no voluntary movements of the fingers of either hand. Muscle tendon reflexes were absent on the right and very weak on the left. Abdominal and cremasteric reflexes were lost on both sides. While the patient lay in bed all leg, thigh and foot movements were present, but so weak that he could hardly sustain the part when raised from the bed. The knee and ankle jerks were extremely active, right greater than left, but there was no Babinski on either side. Sensory examination showed a very marked hyperæsthesia extending from CIII to ThIV except for a patch of anæsthesia for all sensation on the front and back of the right hand extending up the back of the forearm in the musculo-spiral distribution. The hyperæsthesia was more marked on the right side than the left.

On August 27th, eight days after the injury, the patient was considerably improved. He could stand with some assistance, but could not walk. Moved his head more freely, but none of the movements were complete. Muscular power had returned in the shoulders, and was almost complete. Flexion at the elbows on both sides was complete but extension was practically absent. The double drop-wrist persisted, and there were

no hand or finger movements. The arm reflexes appeared quite normal and equal. The abdominal reflexes were still absent, but the cremasterics were present, though sluggish on both sides. The knee and ankle jerks were still lively and equal, there was no Babinski. Sensory examination showed the anæsthetic area of the right hand to be gone and replaced by hyperæsthesia for all sensibility. The area of hyperæsthesia from CIII to ThIV had disappeared from the left side and was much less marked on the right.

On September 2d, fifteen days after the accident the patient showed still further improvement. He was up and walking around the ward with aid. Neck and head movements were practically complete. All movements at the shoulder could be completed, somewhat stronger on the left. Flexion and extension at the elbow was fairly strong, more so on the left. Pronation and supination of the forearm had returned about fifty per cent. There was still no flexion or extension at the wrists. Both thumbs could be flexed and extended slightly, and there was some extremely slight extension of the third and fourth fingers on the left hand. The abdominal and cremasteric reflexes were present, but sluggish on both sides. The knee and ankle jerks were still lively but equal, and there was no Babinski. The sensation was now practically normal throughout, except possibly some very slight hyperæsthesia on the right arm. Shortly after this the patient was transferred to England and passed from under the author's observation.

The author feels, in view of these very positive organic findings, and the distinctly anatomical localization of the signs, that the diagnosis of hysteria is excluded. The resulting picture is due to two more or less independent conditions. This man undoubtedly received a severe twisting injury to his neck which did not fracture or dislocate any of the vertebræ. The condition seen in the arms, with the flaccid paralysis and anæsthesia turning to hyperæsthesia before disappearing, was undoubtedly due to peripheral nerve injury affecting the nerves either in the roots or in the plexuses. The course of this paralysis, with recovery in the proximal parts before the distal, would further strengthen this contention. The second element, the paraplegia with loss of superficial and increase of deep reflexes certainly points to a spinal-cord localization, most likely in the region of the original hyperæsthesia, *i. e.*, CIII to ThIV. The rapid disappearance of these signs and the recovery from the paraplegia would negate the possibility that a destructive process had taken place in the spinal cord. We are, I think, fair in assuming that some disturbance of the spinal cord had occurred at this point, probably quite similar to that which occurred in Kirchgasser's slightly traumatized rabbits, and hence this case is reported as one of concussion of the spinal cord.

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## PRESIDENT'S ADDRESS \*

By HENRY T. DANA, M.D.,  
CORTLAND N. Y.

In preparing this address it was my purpose to gather together such data as were obtainable in regard to the history of the Cortland County Medical Society and its members since it was organized in 1808 now one hundred and twelve years ago.

At the centennial meeting of the society in 1908 Dr. H. C. Hendrick then its president gave as the subject of his address a rather full account of the activities of the society and reminiscent references in regard to several of its members covering the century of its existence. This was a most interesting paper as those of us who were privileged to hear it will remember with especial pleasure. Unfortunately this paper is not in the records of the society and so far as the writer knows is not now obtainable.

Dr. Hendrick was a facile writer, possessed of an excellent memory, with a faculty of clever grouping of the incidents of his story. He had been a member of this society for fifty three years a period covering all of the last half of its first century, when this address was given.

Cortland County Medical Society is the oldest existing society or association formed for any purpose in Cortland County. It dates its organization from the same year that the county was organized by an act of the legislature of the state in the spring of 1808. Prior to that time the area of Cortland County was a part of Onondaga County. Two years before in 1806 a law was passed authorizing the formation of county medical societies.

This act of the legislature reminds us of the interest of the public at that early date in the matter of civic welfare that the conservation of medical practice and its importance to the community should be safeguarded by legal restrictions and requirements. Much might be written in regard to the status of medical education and the facilities for a student acquiring even the then limited knowledge possible of the art and science of medicine. There were but few medical schools or colleges in the entire country. For centuries theological studies had far outstripped those of medicine. But out of the wilderness came a time when medicine should emerge in due time and in our time medical pre-eminence over all other scholastic thought.

Only a decade and a half had passed from the time the hardy and adventurous pioneers had come into the primeval forests of this part of the State animated by a courage and fortitude unpossessed by the generations of today and among those early settlers were a number of physicians.

Visualize if you can the physical state of the country at that time. No roads no dwellings except a rude hut of logs and a bark roof. No open fields or tillable ground except as timber was removed and a

little area was cleared for the seeding with corn or wheat, for the subsistence of another year.

Locomotion was either on foot or on horseback and the precious agents for healing the wounded for giving comfort for those in pain for starting the sanguineous flow in inflammation peristaltic persuaders where static conditions prevailed in the intestinal tract and the Lord only knows what they did for ague and he never has told, all these were packed into the saddle bag with extras that we are not able to identify at this time. Believe me life was not all skittles and beer in those days. However these hardy pioneers these disciples of the healing art alive to the claims and obligations due to themselves and to the public, proceeded without delay to the formation of the Cortland County Medical Society.

The following list of gentlemen authorized to practice physic and surgery, convened at the house of Captain Enos Stimson in the town of Homer on Wednesday the 10th day of August 1808 and by their joint action organized themselves into a society by the name and title of the Cortland County Medical Society. This name and organization has continued without interruption to the present day and it is the cherished hope of your historian that another century of beneficent influence awaits it. The officers chosen at this organization and initial meeting were Dr. Lewis S. Owen president Dr. John Miller vice president Dr. Jesse Searl secretary and Dr. Robert Taggart, treasurer.

Others that were present and were legally authorized to practice medicine and physic were Luther Rice Elijah J. Wheeler Ezra Pennell and Allen Barney.

No bard had ever sung praises of praise to this little coterie of men who adapted themselves into a society to meet the requirements of statute law. A law designed to define and regulate the practice of medicine and surgery in the State.

It was a law that gave to the members of organized medical societies a legal status with provision for the admission of new members only after an examination and certification by the faculty of a chartered medical school or the board of censors of a county society. Prior to the passage of the act of the legislature in 1806 by which recognition of the civic necessity of a degree of regulation on the part of the State of the practice of medicine all sorts of self appointed and constituted healers of the ill and near ill were to be found in every community. The collective intelligence of the people as represented in the legislature of the State demanded a recognition of the prime necessity of certified qualification of an aspirant before the important function of safeguarding the health and lives of the people should be committed to their care. There can be no doubt that the spirit of the time was progressive in its tendency especially in the matter of education under the beneficent influence of democracy.

Taking up however more specifically the record of the newly organized Cortland County Medical Society we find that at the initial meeting the following resolutions were presented and adopted: 1st Resolved That each member of the society pay fifty cents into the hands of the treasurer for the purpose of procuring a book of records for the secretary's office etc. 2nd Resolved That John Miller Ezra Pennell and Allen Barney be a committee to draft a set of By-Laws for the regulation of this society. Then follows a resolution fixing the place and date of the next meeting viz the third Wednesday of October which meeting failed by reason of non attendance of members.

Next meeting of the society was held at Homer May 17th 1809. At this meeting Dr. Mordecai Lowe was admitted a member upon his presentation of a diploma from a medical society in the State of Vermont. It appears from the records that a meeting held at Homer in October 1812 the society granted diplomas to applicants signed by the president and secretary.

## THE LEGISLATURE

The second month of the current session of the Legislature has ended and during this period a number of proposed laws have been introduced which are of vital importance to the physician.

The Chairman of the Committee on Legislation of the State Society, Dr J F Rooney, has written an open letter which appears in this issue of the JOURNAL in which he calls attention to the urgent need of co-operation if the public is to be protected from the passage of proposed laws which are not in the interest of public health.

The bill to prohibit investigation and experimentation on the living dog, introduced by Senator Boylan, though an old and thoroughly discredited attempt to interfere with progress in the science and art of medicine, is attracting renewed attention. It was stated in these columns some months ago that the late General Hawkins bequeathed \$100,000 to be used to aid in the passage of laws preventing animal experimentation, but the use of this money will not lessen the weight of our appeal in a righteous cause. The Public Health Committee of the New York Academy of Medicine and other influential organizations have passed suitable resolutions which have been sent to the committee to which the bill was committed. The hearing on this bill will be held on March 22 and a full attendance of men whose opinions will meet with respect and credence is assured.

The Orr bill in the Assembly, to establish a system of compulsory insurance, to furnish benefits for employes in case of old age, unemployment, death, sickness and accident, and for their dependents, including maternity benefits, and the Robinson bill in the Senate, to provide for residents of rural districts and others, adequate and scientific medical, and surgical treatment, hospital and dispensary facilities and nursing care, to provide laboratory and consultative service and establish health centers, are two proposed measures which demand the earnest attention and most careful thought of every member of the medical profession.

Attention is again directed to the urgent need for every physician to use his best *personal* efforts with every member of the Legislature known to him, to prevent the enactment of any law which might lower the standards of medical practice or make it a less desirable vocation, to the detriment of the welfare of the people.

Recent years have witnessed the rapidly increasing attention of the people in all parts of the Nation to public health and social welfare, and in consequence the legislatures of all States of the Union are considering many proposed laws closely linked to the practice of medicine. Owing to their bearing on medicine as a profession, it is the duty of every physician to be conversant with the details of these matters in order that he may

be able to properly advise concerning them. Such attention and study by physicians as a whole will do much to prevent hasty and incomplete measures for the public good, and will also prevent any arrangement with the medical profession inimical to its standards and dignity. There is scarcely a State medical journal published in this country which is not devoting space to the consideration of these subjects and physicians are awakening to their civic duty.

A reprint is at hand "Concerning Pending Medical Legislation" Argument of Dr G W Miles, representing the Legislative Committee of the Madison County Medical Society before Hon A J Bloomfield, Senator and Hon J A Brooks, Member of Assembly, at the Madison House, Oneida, December 3, 1920, which is a commendable effort to instruct the lawmakers, a plan which might be copied by the Legislative Committees of other counties of the State.

## THE CHIROPRACTIC BILL

The Chairman of the Legislative Committee in an open letter states the immediate need of active work by all members of the State Society in opposing a measure about to be introduced in the Legislature which proposes the license of chiropractors. In opposing this measure the opinion of those who assume to pass judgment on the wisdom of this step must not be based on anything but established fact, and sufficient positive evidence is at hand to make conjecture unnecessary. Attention is directed to the following statement which contains a series of facts which seem to justify the recommended action.

### A STATEMENT ON CHIROPRACTIC

BY THE PUBLIC HEALTH COMMITTEE OF THE NEW YORK ACADEMY OF MEDICINE

The interest of the medical profession in its opposition to the licensure of Chiropractors by the State of New York does not represent dissatisfaction with a school of the healing art conducted by competent educated persons skilled in the recognition and treatment of disease. It is not a subterfuge request to the State to guard the welfare of the recognized profession. It is a "safety first" warning by men qualified to judge the health interests of the State. The safety of the Commonwealth demands careful attention to at least one fundamental factor, namely: Are the exponents of Chiropractic properly qualified to maintain the chief established principle of public health—the *prompt recognition and isolation of communicable disease*? An unbiased study of the requirements for graduation and practice of Chiropractic indicates that the Chiropractor is not by education or undergraduate experience in the least qualified to distinguish between communicable and non-communicable disease. Thus, licensure of the Chiropractor will immediately negate the elaborate, costly efficient efforts of the public health officials of the State in the prevention of epidemics by prompt report and segregation. This opinion is based on a large amount of collected evidence from which a few facts only are mentioned here to confirm the stated conclusion. In the Announcement of the Palmer School of Chiropractic, the foremost teaching institution of its

kind the following is said of contagious disease. Medical pathology assumes that contagious disease always existed or, at least they seem to suppose that each one caught it from someone else and if they could cure each person having such a disease, there would be none to catch. Chiropractic pathology finds that the same cause that produced the so called contagious disease in the first person that ever had it produces the same in the second. To correct the cause of the contagious or other forms of disease in one means to be able to do so in others. Disease conditions are similar, differing only in degree and Chiropractors find the causes in the body and not externally. In other words, the Chiropractor treats contagious diseases in the same manner as he treats all other conditions.

Study of the following text books of Chiropractic demonstrates an absolutely inefficient description of communicable diseases and the safeguarding of the public health.

Harry E. Vedder. A Text Book on Chiropractic Physiology, Davenport Iowa, 1916.

Willard Carver. Psychobiology—consisting of applied psychology biology as the cause of histology and anatomy and a description of the conduct of anatomic parts which is physiology. Oklahoma City and New York, 1920.

Harry E. Vedder. A Text Book on Chiropractic Gynecology, Davenport Iowa, 1919.

S. Burich. A Text Book on Chiropractic Chemistry, Davenport Iowa, 1919.

Examination of the Announcement of the Palmer School of Chiropractic, Davenport Iowa, demonstrates that no opportunity is given to the students for the recognition of communicable disease and no training in the safeguards to prevent the spread of such diseases.

While the evidence at hand is amply sufficient to prove the absolute inability of the Chiropractor to recognize communicable disease from the knowledge and experience he gains at his institution of learning conservatism and stern justice demand a complete searching investigation of chiropractic claims in the treatment of non communicable disease before definite conclusions are justified. Such investigation is now being undertaken by one of the Foundations interested in professional education and the outcome is awaited with interest. On command of the Lieutenant Governor of Ontario Canada the Honorable Mr. Justice Hodgins of the Supreme Court was given a commission to investigate medical education in Ontario and his report in 1917 fills a book of 117 pages. Relative to Chiropractic he considered all phases of the problem, its origin, progress and practice. While careful study of the entire report is fully justified the following brief abstracts are sufficient to indicate his conclusions.

The repudiation by the Chiropractor of all modern scientific knowledge and methods is such that it would be impossible to recommend any way in which they could be allowed to practice by which the public could be safeguarded. Their case was well presented but was definitely Ishmaelistic. Those who appeared before me saw no necessity for preparatory qualifications, ridiculed and repudiated diagnosis, bacteriology and chemistry. I admitted that a chiropractor acts in all cases on his cardinal principle without examination.

Dr. B. J. Palmer the head of the most important chiropractic college in the United States in giving evidence in the case of the State vs. Janesheski in December 1910 when asked whether, when a patient came to a chiropractor he was asked the history of the case answered: "No because it be of no value" and in answer to why that was so said: "A person comes to us without telling us what the trouble is, it makes no difference whether a physician has already diagnosed it as insanity, appendicitis, indigestion, or anything they call it. The Chiropractor needs to know nothing about that case from a physician's standpoint, it is immaterial, yet he can take that case put it down on his benches and analyze that spine just as accurately without knowing those things in fact sometimes I think better."

It is not essential the chiropractor should know what that patient said he had but you can adjust the current for it running into the organ, and the patient is well. That is where chiropractic becomes purely a mechanical proposition—a mechanical and electrical making circuit proposition in a man.

I cannot bring myself to the point of accepting as part of our legalized medical provisions for the sick a system which denies the need of a diagnosis, refers 95 per cent of diseases to one and the same cause, and turns its back resolutely on all modern scientific methods as being founded on nothing and unworthy even to be discussed.

The Public Health Committee of the New York Academy of Medicine desires to emphasize the fact that the principles of Chiropractic and the understanding on the part of Chiropractic practitioners of the cause of communicable disease are so completely at variance with the principles of medical science as to constitute a menace to the public health. By legal recognition of the Chiropractors the public might be led to believe that the practitioners are capable of offering competent treatment.

## ORGANIZATION OF THE PROFESSION

Much is being said about the "organization of the profession," and there is considerable criticism of the lack of such organization, and the dereliction on the part of State societies and particularly of their officers in speedily bringing this about. This desired and desirable organization is not for a vote getting effort to wield political power as the loudest advocates reclaim, but for the purpose of securing a unanimity of opinion on the part of the medical profession as a whole concerning what is right and what is wrong in proposed laws having to do with medical practice and medical men. In such harmony of opinion there lies sufficient power to succeed, making political methods and particular party affiliation unnecessary and undesirable.

To bring about such organization it is necessary first of all to have every member realize the need. This is not the duty of one man nor can one man accomplish it, no matter how faithful his effort or sincere his purpose. Mass organization is not new nor is its accomplishment complex. Once the mass realizes the need of organization it comes like a whirlwind, the demand is on every hand irresistible a force that compels meeting, organization and promulgation of aim and scope.

If the profession does not realize the need for closer organization, a clever, competent advocate can travel the State from meeting to meeting for years, and accomplish no more than to obtain resolutions of endorsement of his ideas, that look pretty on paper but are sterile from a practical point of view. Let the legislative body threaten to enact a law which fundamentally alters the

status of every physician in the State, an immediate demand for complete organization for defense would come from every throat, an irresistible force. An organization would result from within which is the only way in which true organization is attained. In that case it would probably be too late as it was in England in the matter of health insurance.

If the Medical Society of the State of New York desires closer organization for the purpose of reaching a unanimity of opinion which the people of the State must respect, this desire must be in the heart of every member. If this is the fact they will get together for this purpose at their next annual meeting, and promulgate the result. If there is a need for such closer organization and the members do not bring it about, the fault lies with them and must not be ascribed to the State Society Organization or to its officers.

#### DEMENTIA PRAECOX

The Society for the Promotion of the Study of Dementia Praecox is mainly concerned in influencing representatives and others to establish a laboratory of research into the cause of dementia praecox and other insanities. Horatio N. Pollock is quoted as the author of the statement that the State of New York could well afford to expend \$100,000 yearly in an attempt to discover the cause of dementia praecox, which fills more than 60% of all the beds in the New York State Hospitals. The officers of the Society are Dr. George Mitchell, President, Peoria, Ill., Dr. Bayard Holmes, Secretary, Chicago, Ill.

### Correspondence

#### NOTICE

STATE OF NEW YORK—DEPARTMENT OF NARCOTIC DRUG CONTROL, ALBANY

Special Rules and Regulations for the City of Greater New York having been promulgated by me taking effect June 25, 1919, providing for the registration of all drug addicts in and for the City of Greater New York pursuant to the authority conferred upon me by Chapter 639 of the Public Health Law, Article 22, Section 421 thereof, and the necessity for such registration having been eliminated by regulation No. 12 of the new Rules and Regulations of this Department prohibiting the use of unofficial blanks by physicians issuing prescriptions for or administering or dispensing cocaine opium or their derivatives, and by regulation No. 16 requiring data concerning prescriptions for habitual users to be inserted on the official blanks, I, therefore, hereby revoke and repeal the aforesaid Special Rules and Regulations for the City of Greater New York requiring the registration of all drug addicts promulgated on June 25, 1919, to take effect February 14, 1921.

WALTER R. HERRICK, *Commissioner*

#### OPEN LETTER FROM THE CHAIRMAN OF THE COMMITTEE ON LEGISLATION

TO ALL MEMBERS OF THE STATE SOCIETY

The great defect in any attempt on the part of the medical profession to influence legislation has been due to the lack of interest on the part of most members in matters which most deeply concern them, as evidenced by their failure to discuss legislative measures with their own local representative in the legislature during the weekly recesses. Practically all members of the legislature are at home from Friday to Monday of each week.

If the Society does not wish to have duplicated the results of last year in respect to the passage of the Chiropractic Bill by both Houses it must immediately take the necessary measures to prevent it. Your chairman can not do it all.

There are not to exceed one thousand (1,000) Chiropractors in New York State, the figure is probably nearer to eight hundred (800). There are fifteen thousand (15,000) physicians nearly nine thousand (9,000) in the State Society. If the bill passes this year it will be the fault not of any individual but of all the members. The bill will be introduced by March 15th, and the legislature will be overwhelmed with demands from Chiropractors and their adherents carried on by the well financed lobby, with the same legislative agent at its head which secured the passage of the bill last year, aided very largely by the efforts of one of the representatives from Onondaga who was in the Assembly last year and this year is in the Senate.

What must be done?

1 Each County Society should immediately take concerted action either by a special meeting to which meeting their representatives in the Senate and Assembly are invited, at which meeting their view points of the medical profession in relation to this and other measures shall be adequately presented.

2 The Chairman of the Committee on Legislation and their components should make it their duty to see each Senator and Assemblyman of their district personally and place before them the attitude of the medical profession based entirely upon their interests in the public health.

3 The family physician of each of the representatives in Senate and Assembly should be requested to use their proper influence in order to make their patient see the real facts.

4 The Chairman of the Committee should be notified immediately that the interview has taken place with the individual representative and his physician upon these measures. Separate cards for each member of the legislature will be forwarded shortly to the Secretaries of each County Society for the purpose of recording the position of Senators and Assemblymen on various legislative measures and should be returned promptly to the undersigned.

5 The Senators and Assemblymen from each district should be notified in writing of the position of the County Society in their district and a campaign of letters and telegrams not only from the medical profession but from public-spirited citizens and patients should be sent without remuneration during the session of the legislature. Pamphlets giving the facts in relation to Chiropractic, will be in the hands of the Secretaries and Chairmen of the Legislative Committee of each County Society within a few days.

Unless all members co-operate in this endeavor to sustain the educational requirements of the State of New York for entrance into the practice of medicine and the advancement of public interests, the public health will be set back forty years by the passage of this legislation.

The Chairman therefore requests that each member of the Society take a personal interest in forwarding all efforts for the good of the public and the profession.

JAMES F. ROONEY,  
Chairman of Committee on Legislation

#### NEW YORK COUNTY PROTEST

February 26, 1921

To the Editor,  
NEW YORK STATE JOURNAL OF MEDICINE

At the stated meeting of the Committee Minora of the Medical Society of the County of New York, held February 14, 1921, a communication was received from the Special Committee on Public Health and Legislation of the Greater City of New York of the Medical Society of the State of New York, recommending the enactment of legislation whereby one hundred physicians annually, for the period of three years, subsidized by the State at a total cost of \$540,000, would be placed in rural communities in the various counties by the Department of Education or the Department of Health.

The Committee Minora adopted a resolution voicing the protest of the Medical Society of the County of New York against the substance matter of this communication as being without the province of said committee and in direct opposition to the expressed opinions of the House of Delegates and the County Societies on matters of State Medicine, and against the illegality of its publicity, inasmuch as it was published and promulgated before being submitted to the proper authoritative body, the House of Delegates, in accordance with the By-laws of the Medical Society of the State of New York (Chapter III Sec. VI.)

The Secretary was instructed to send notice of this protest to the President, Secretary and Counsel of the Medical Society of the State of New York and to the Secretaries of the several County Societies.

Very truly yours,

D. J. DOUGHERTY, Secretary,  
Medical Society of the County of New York

#### COMPULSORY HEALTH INSURANCE

To the Editor NEW YORK STATE JOURNAL OF MEDICINE

In an interesting article in the February issue of your JOURNAL, Dr. A. L. Benedict cites figures and advances analogies which are to some extent I believe misleading. Thus, to show that the disaster (of sickness) is neither overwhelming nor even of great financial seriousness, the U. S. Department of Labor statistics are adduced, which show the total average cost of both medical and dental services per annum per family as less than \$50. If this proves anything it is that the financial burden to be assumed by the State, which means in the last analysis the community ourselves, will not be unbearable. As a matter of fact the Government figures do not take into account the well known fact that the poorer classes notably the workers do not buy the full medical and dental treatment they need because they cannot afford it. It is just for this reason that an attempt is being made to give the younger generation the care they are entitled to whatever the economic disabilities of the family. Further, these figures do not consider the free services given to the poor, which anyone can have etc. according to Dr. Benedict who does not seem to realize that someone—generally the young physician—has to pay for every patient treated gratis in dispensary clinic or hospital. There is a general protest against forcing the medical profession to give its services free or at a low rate and we hear much about paternalism and pauperization. These terms it appears are reserved for activities exercised by the State.

again in the last analysis ourselves but there is little objection to the same activities and control but in force by private agencies of great wealth which are in no way subject to the jurisdiction of the community. The analogy with fire automobile and postal insurance is unintentionally misleading. The low rates are due to the enormous volume of business. When health insurance is comparatively as general the premiums will probably be very low. Also the financial loss of a great fire or an epidemic is certainly felt by the security holders of the Insurance Companies alone. The economic loss to the community however is indirectly the same as if it were spread in small amounts, over a larger number. Finally it is a question whether 'medical philanthropy' should be in private hands any more than educational corrective, eleemosynary or hygienic philanthropy. If we are to accept favors to gether with the subordination they inevitably entail, let those favors come to us from ourselves. *L'Etat c'est nous*. There may be good arguments against State Health Insurance those advanced by Dr. Benedict would if accepted have killed the Public School system and every legitimate activity of the Municipality for Community betterment.

PERC. FRIDENBERG M.D.

Feb 17 1921

#### EJACULATO PRAECOX AND STERILITY

To the Editor, NEW YORK STATE JOURNAL OF MEDICINE

In his letter in the February issue of the NEW YORK STATE JOURNAL OF MEDICINE Dr. Hühner makes the following statement:

If we do not find any spermatozoa on the cervix, we know at once that the husband is responsible for the sterility *even though live spermatozoa may be found in a condom specimen*. (The italics are the author's.) In this latter condition as before mentioned the husband may be suffering from premature ejaculation hypospadias urethral stricture etc.

May we be permitted to ask why? Why should the husband be held responsible for the sterility *even though live spermatozoa may be found in the condom specimen*? Is it not possible that the fact that no spermatozoa are found on the cervix may be due to a condition of extreme retroversion? And if this is the



case is not really the wife responsible for the sterility and not the husband? And the absence of spermatozoa on the cervix may also be due to the nature of the vaginal secretion which may have a rapidly lethal effect on the spermatozoa. In that case again, it is not the husband that is to be held responsible but the wife.

The principal purpose of this letter, however, is to call attention to the prevalent error concerning the relationship between premature ejaculation in the male and sterility. It is usually assumed that premature ejaculation is an important cause of sterility. This is very far from being the case. On the contrary, those who have an extensive and long practice in this class of cases are surprised at the frequency with which fathers of numerous progeny come for treatment for premature ejaculation. To meet men suffering with premature, nay, not only premature but precipitate ejaculation, who are fathers to half a dozen or a dozen children, is a very common occurrence. It used to surprise the writer why those weak, almost impotent men, have as a rule more children than strong, virile and perfectly potent men. He has, however, discovered a solution of the problem and the solution is a simple one. The reason is a double one.

First people suffering from premature ejaculation are generally weaklings who have very little self-control, though their libido may not be diminished, while their erethism may often be increased. As a general rule it is increased, because people suffering from premature ejaculation often suffer from a congested prostate and a congested posterior urethra which gives them a spurious desire for sexual relations.

Second, those suffering from premature ejaculation cannot use any methods for prevention. They cannot practise coitus interruptus or coitus reservatus or coitus condomatus. The conditions in the virile men are just the reverse. They can exercise greater self-control so as to indulge less frequently or indulge only in those periods which are physiologically practically sterile, and they can also practise coitus interruptus and coitus condomatus.

And so, in my opinion, the idea that premature ejaculation is an important factor in the etiology of sterility must be thrown overboard. For the sake of the wife it would be better if it were so. But it just isn't.

WILLIAM J. ROBINSON, M.D.

J. nuary 28, 1921

#### EXECUTIVE SECRETARY

To the Editor, NEW YORK STATE JOURNAL OF MEDICINE

The January number of the NEW YORK STATE JOURNAL OF MEDICINE is at hand and I am very much disappointed to learn that the Council has again turned down the plan for an Executive Secretary for the State Society.

There are more than 15,000 physicians in New York State. It is self-evident that the medical profession of this State should and must have some organization which will effectively represent the interests of the profession. This is the function of the State Medical Society. No one questions this function of the State Society. There is also no question but that the State Society has failed to functionate properly a very considerable portion of the time. This is almost universally conceded whenever the subject is under discussion. Is this ineffectiveness the fault of the officers of the Society and of those who take a more or less active interest in its affairs or is it the inevitable result of a hopelessly inefficient and unworkable form of organization?

If we conceive of a bank without responsible salaried officers, or a hospital without a superintendent, or an American College of Surgeons without a man like Bowman to direct its activities, we form a mental picture of just such an organization as our State Medical Society actually is to-day. We expect the Elected

Officers, the Council and the House of Delegates to perform not only the functions of the Board of Directors but also to look after the executive details of the work of the organization. This work requires time, special training and ability and a full knowledge of the details of the problems in hand. The elected officers are not even expected to have any of these requisites. Consequently the work is not accomplished.

The interests of the 15,000 practitioners of this State are entirely too important and the associated factors involved too intricate to expect results from an organization meeting once a year and with the executive work delegated to officers who are busy practitioners elected for the most part for only one-year terms. Furthermore, these officers do not even live in close touch with one another. No business could possibly be conducted with this sort of an organization machinery and neither can the interests of the medical profession of the State be looked after by such type of organization.

If we had a man like Bowman of the American College of Surgeons as Executive Secretary our State Society would functionate in every way that we expect it to, and furthermore, it would soon have the confidence and support of the rank and file of the profession.

Some members of the profession question the advisability of delegating responsibility to such a man. There is no basis for such fear because with an Executive Secretary acting as the responsible agent of the Society we would know exactly who was responsible, and if one man did not make good we could get another.

The problem of paying for such a Secretary is of very minor importance. The profession of this State will pay anything for value received. If the officers of the Society will select a real man for the job the problem of raising the necessary funds to pay his salary can be very readily solved.

Very sincerely,

E. MACD. STANTON

#### Deaths.

BETTS, JOSEPH B., Buffalo, Albany Medical College, 1894, Fellow American Medical Association, Buffalo Academy of Medicine, Member State Society, Assistant Physician Buffalo State Hospital. Died January 29, 1921.

BROWN, JOHN P., Nunda, New York University, 1881, Member State Society. Died January 18, 1921.

CRIDO, LUIS FERNANDEZ, New York City, College of Physicians and Surgeons, New York, 1879, Member American Academy of Medicine, State Society. Died February 7, 1921.

HATFIELD, FRANK P., Rockaway Park, Long Island College Hospital, 1899, Member State Society, Visiting Physician, Rockaway Beach Hospital. Died February 5, 1921.

HELME, THOMAS, Albany, Albany Medical College, 1890, Member State Society. Died January 4, 1921.

HILLMAN, W.B., Greece, Bellevue Medical College, 1893, Member State Society. Died February 5, 1921.

MCGUIRE, FRANK A., New York City, New York University, 1877, Member State Society, Visiting Physician City Prison. Died February 28, 1921.

MANN, MATTHEW D., Buffalo, College of Physicians and Surgeons, New York, 1871, Fellow American Medical Association and College of Surgeons, Member American Gynecological and State Societies, Buffalo Academy of Medicine, Consulting Gynecologist Buffalo General and Erie County Hospitals. Died March 2, 1921.

ROBERTS, H. MORTON, Herkimer, Buffalo Medical College, 1892, Member State Society. Died January 15, 1921.

## DEAN OF THE PROFESSION OF CORTLAND COUNTY

On page 101 of this journal will be found a sketch by Dr Henry T Dana, the dean of the profession of Cortland County. Dr Dana is still in active practice is progressive and never misses a meeting of the society. His dignity and close adherence to the best traditions of the profession during a long and useful career have been an inspiration to his professional brethren.

On May 28 1913 Dr Dana was tendered a banquet by the Cortland County Medical Society to commemorate the completion by him of fifty years in the practice of medicine. On that occasion Dr Wisner R Townsend the late secretary of the Medical Society of the State of New York was the toastmaster. Addresses in appreciation of the life and work of Dr Dana were made by Dr Townsend, the late Dr Jacobson of Syracuse Nathan L. Miller now Governor of the State of New York and others. The Cortland County Medical Society on that occasion presented Dr Dana with a loving cup as a token of love honor and esteem.

## AMENDMENTS TO THE CONSTITUTION AND BY LAWS WHICH WILL BE PRESENTED FOR ACTION AT THE NEXT ANNUAL MEETING OF THE HOUSE OF DELEGATES

Presented at the last Annual Meeting of the House of Delegates and published in accordance with the State Society By-Laws Chapter VII Section I

Amend the Constitution, Article VII Section 2 by substituting \$5 for \$3 in the second line, which will then read

"The State annual per capita assessment shall be \$5, and shall be collected by the County treasurers at the same time and as part of the County dues and shall be remitted to the State Treasurer by the treasurer of each County Society on or before the first day of June of each year."

Amend the Constitution, Article IV, by striking out the words "each county society shall be entitled to elect to the House of Delegates as many delegates as there shall be State Assembly districts in that county at the time of the election, except that each county society shall be entitled to elect at least one delegate and except that whenever at the time of election the membership of a county society shall include members from an adjoining county or counties in which there shall be no county society in affiliation with this Society, such county society shall be entitled to elect from among such members, as many additional delegates as there are assembly districts in the county or counties so represented in its membership."

And inserting the words "The delegates shall be apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society shall be entitled to elect at least one delegate. The House of Delegates may from time to time fix the ratio of apportionment."

Amend the By-Laws, Chapter 7, Section 2 by adding to the standing committees a Committee on Prize Essays.

## County Societies

### QUEENS NASSAU MEDICAL SOCIETY

#### JAMES S COOLEY TESTIMONIAL DINNER

The separation of the Queens-Nassau into two County Medical Societies was made the occasion of a Testimonial Banquet to Dr James S Cooley on January 26 1921. Dr Cooley had served as Secretary of the Society for thirty consecutive years. Over one hundred and fifty sat down at the banquet held at the Garden City Hotel. Dr Thomas C Chalmers of Forest Hills the President of the Medical Society of the County of Queens in the capacity of toastmaster paid a high tribute to Dr Cooley stating that in his reports to the State Society his promptness and accuracy had brought the Queens Nassau to the foremost rank of the County Societies of the State. It was the regret of the Queens County Society that geographical location deprived them of Dr Cooley's most valuable services.

Dr Frank Overton for the past fifteen years Secretary of the Suffolk County Society, recited an original poem setting forth the services of the physician to mankind so well exemplified by Dr Cooley's career.

Dr Frank T De Lano of Rockville Center recalled personal reminiscences of Dr Cooley's services as Secretary of the Queens Nassau County Society emphasizing the love and esteem in which he is held by his fellow members.

Hon Frank Coles ex-assemblyman of Nassau County and President of the Board of Education, addressed the assemblage on Dr Cooley as an educator characterizing him as an able and enthusiastic worker in this field who did much to advance education first in Glen Cove where Dr Cooley was a practicing physician for many years and at the present time as School Commissioner of the First District of Nassau County in which capacity he ranks second to none among the Commissioners of the State.

Dr E. Eliot Harris Speaker of the House of Delegates of the State Society, paid tribute to Dr Cooley's services to the County and State Societies and to the profession of medicine and outlined the progress of medicine during the period of Dr Cooley's and his own careers as indicated by medical education and standards of medical practice. He made an appeal to the members of the two County Societies to take a strong stand in matters pertaining to medical practice in the State of New York.

Dr John H. R. Barry of Long Island City, the official head of the Department of Health for the Borough of Queens spoke of the sad pleasure of the separation of the Queens-Nassau into the individual County Societies and of the unvarying guide of the Cooley initiative of the Cooley loyalty and of the Cooley service throughout the three decades of the Queens Nassau existence.

In calling upon Dr Cooley to speak Dr Chalmers said the Queens Society is still yours. He presented Dr Cooley a token in gold from the members of the Queens Nassau Society.

Dr Cooley feelingly expressed his appreciation of the evidence of esteem in the tendering of the Testimonial Banquet and in the words of the speakers saying that they meant more to him than the gold with which he had been presented. He recited briefly some of the incidents of medical organization in the State during the period of his career.

The new Medical Society of the County of Nassau was organized on January 21 1921 with 73 members and elected the following officers: President J. Ensor Hutcheson of Rockville Centre, Vice President Gustav Fensterer of Floral Park, Secretary Treasurer James S. Cooley of Mineola.

The Queens Nassau Medical Society has applied to the Supreme Court to adopt its original name the Medical Society of the County of Queens, which was

organized in 1806 and became the Queens-Nassau in 1899 when Nassau County was formed out of part of Queens. As reorganized it has a membership of 128. Its officers for the year 1921 are: President, Thomas C. Chalmers of Forest Hills, Vice-President, Charles B. Story of Bayside, Secretary-Treasurer, L. Howard Moss of Richmond Hill.

### THE MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON

SPECIAL MEETING, HUDSON FALLS, N. Y.  
TUESDAY, FEBRUARY 1, 1921

At a special meeting called for approving Governor Miller's recommendations to abolish the State Narcotic Commission and to consider other legislative matters, it was resolved to endorse the resolutions adopted by the Broome County Medical Society in the regular session of January 11, 1921, as follows:

"To His Excellency, Nathan L. Miller, Governor of New York State, and to others:

"The Broome County Medical Society in its regular session of January 11, 1921, unanimously endorses your proposed intention of abolishing the Department of Narcotic Drug Control of the State of New York for several reasons:

"1st That it is a reduplication of the Federal Bureau at Washington.

"2nd That it accomplishes nothing that the Federal Bureau does not accomplish.

"3rd That it therefore causes an unnecessary expense to the State.

"4th That it causes an unnecessary burden to the Medical profession of New York State.

Dr. Falkenburg introduced the following resolution:

"We as the Medical Society of the County of Washington, and as individuals, protest against the arbitrary and unreasonable rulings of the Narcotic Commissioner. Especially do we oppose regulation No. 12 demanding the use of official blanks, which entails unnecessary expense and adds unnecessary details of work upon the physician, serving no useful end whatever." Seconded and carried.

Dr. Falkenburg introduced the following resolution:

"Resolved, That we, the members of the Medical Society of the County of Washington, wish to register our opposition to the granting of a license to practise the method of healing by the chiropractor, or the members of any other cult without first meeting the requirements of the University of the State of New York as required by the regular medical profession." Seconded and carried.

### MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER

REGULAR MEETING, TROY, N. Y.,  
MARCH 8, 1921

At a regular meeting of the Medical Society of the County of Rensselaer the following resolution was unanimously adopted:

RESOLVED That the Medical Society of the County of Rensselaer favors the repeal of the State Narcotic Law and opposes the bill transferring the power of the Narcotic Drug Commission to the State Department of Health, as its members consider the Harrison Federal Act covering narcotic control to be sufficient.

### CORTLAND COUNTY MEDICAL SOCIETY

SPECIAL MEETING, CORTLAND, N. Y.  
THURSDAY, FEBRUARY 10, 1921

At a special meeting of the Cortland County Medical Society on February 10, 1921, the following resolution was adopted:

"That the Secretary communicate to the Special Committee on Public Health and Legislation of the Greater City of New York, a disapproval of their proposed plan to subsidize physicians in rural communities, as expressed by their resolution under date of January 31, 1921."

### MEDICAL SOCIETY OF THE COUNTY OF TIOGA

REGULAR QUARTERLY MEETING, OWEGO, N. Y.  
TUESDAY, MARCH 1, 1921

The meeting was called to order in the Court House, at 1:30 P. M.

Drs. Lorin A. Walker, of Owego, and Frederick A. Carpenter, of Waverly, were admitted to membership.

Dr. U. S. Kann, of Binghamton, gave a talk on "Radium," illustrated by lantern slides, in which he pointed out its present uses and limitations.

Dr. Ross G. Loop, of Elmira, reported a long series of "Observations on Uterine Fibromata." The doctor stated that 98 per cent of these had an abnormally high blood pressure, which he even considered a large factor in diagnosis. Dr. Loop also exhibited an ovarian cyst that he had just removed from a girl of nine years of age.

### MEDICAL SOCIETY OF THE COUNTY OF TOMPKINS

ANNUAL BANQUET, ITHACA, N. Y.  
TUESDAY, FEBRUARY 22, 1921

The regular February meeting of the Society was replaced by the Annual Banquet, which was held Tuesday evening the 22d, Washington's Birthday, at the Ithaca Hotel. The dining room and each table was decorated with flags. Fifty members and guests enjoyed the pleasures of the evening.

With the serving of coffee and cigars, President Edward L. Bull introduced Dr. V. A. Moore as the toastmaster of the evening.

Dr. Moore, with a few well chosen remarks introduced by Dr. Joseph Roby, of Rochester, who gave an informal but practical talk on "Some Latter Day Problems of Medicine," touching upon many of the minor problems and some of the major ones.

The toastmaster, after reading greetings and regrets from absent members, introduced Dr. Nathaniel Schmidt, Professor of Semitics at Cornell University, who spoke on "Papyrus Ebers" or "The Book of Dead." This papyrus, discovered in Egypt in the latter part of the last century is one of six ancient books on medicine written about 1500 B. C. The other five are still undiscovered.

This book treats largely of remedial measures as practised by the Egyptian physicians of that time and Professor Schmidt quoted numerous very curious and interesting examples from it.

The toastmaster then introduced Dr. R. Paul Higgins, of Cortland, who addressed the members on pending legislative matters, especially the current bill to establish so-called Health Centers in the State, which is opposed by the profession on the grounds that it is not needed nor asked for by residents of the rural districts which are supposed to be benefited by it, the measures it proposes would, if carried into

effect impose heavy and unnecessary burdens upon the taxpayers and go a long way toward establishing a system of State medicine which has proved to be vicious wherever it has been put in practice. A short discussion followed after which the meeting adjourned.

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review as dictated by their merits or in the interest of our readers.

**THE EFFECT OF CERTAIN AGENTS ON THE DEVELOPMENT OF SOME MOULDS** By K G BITTING M S Bacteriologist Glass Container Association of America National Capital Press Inc Washington D C

**PRACTICAL PSYCHOLOGY AND PSYCHIATRY** By C B BURP MD Fifth Edition Revised and Enlarged With Illustrations F A Davis Company, Philadelphia Pa Price \$200

**AMERICAN RED CROSS WORK AMONG THE FRENCH PEOPLE** By FISHER AMES JR Published by the Macmillan Company New York. Price \$200

**ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1920** Published by the Government Printing Office Washington D C

**THE LOGIC OF THE UNCONSCIOUS MIND** By M K BRADY Published by the Oxford University Press New York City Price \$640

**THE PSYCHOLOGY OF THE SPECIAL SENSES AND THEIR FUNCTIONAL DISORDERS** The Croonian Lectures delivered before the Royal College of Physicians June 1920 By ARTHUR F HURST, MA MD Oxon FRCP Oxford University Press New York City Price, \$500

**SURGICAL ASPECTS OF DYSENTERY INCLUDING LIVER ABSCESS** By ZACHARY COPE BA MD MS Lond, FRCS Eng Oxford University Press New York City Price, \$500

**THE OXFORD MEDICINE** By Various authors Edited by HENRY A CHRISTIAN, AM MD, and SIR JAMES MACKENZIE MD FRCP LLD FRS In Six Volumes Illustrated Volume III Diseases of the Digestive System Kidneys and Ductless Glands Published by the Oxford University Press New York City

**PRACTICAL TUBERCULOSIS A BOOK FOR THE GENERAL PRACTITIONER AND THOSE INTERESTED IN TUBERCULOSIS** By HERBERT F GAMMONS MD Introduction by J B McKnight MD Published by C V Mosby Company, St Louis Mo Price \$200

**THE WASSERMANN TEST** By CHARLES F CRAIG MD MA, FACS Second edition revised and enlarged Illustrated with colored plates halftone plates and sixty one tables C V Mosby Co St Louis Price \$425

**THE AMERICAN YEAR BOOK OF ANESTHESIA AND ANALGESIA 1917 1918** F H McMECHAN AM MD Editor Surgery Publishing Co, New York City Price \$1000

**OPTIMISTIC MEDICINE OR THE EARLY TREATMENT OF SIMPLE PROBLEMS RATHER THAN THE LATE TREATMENT OF SERIOUS PROBLEMS** By a Former Insurance Man F A Davis Company, Philadelphia Pa Price \$300

## Book Reviews

**HISTORY AND BIBLIOGRAPHY OF ANATOMIC ILLUSTRATION IN ITS RELATION TO ANATOMIC SCIENCE AND THE GRAPHIC ARTS** By LUDWIG CHOULANT Translated and edited by MORTIMER FRANK BS, MD University of Chicago Press 1920 \$10 00 net

By Dr Frank's clarifying translation this impressive work of original historic research is now available to a wider audience. Although Ludwig Choulant was one of the greatest of medical bibliographers and author of a work on internal medicine this present volume is not strictly medical in its viewpoint using this word in its narrow sense.

Anatomic illustration indeed, is treated as a slowly perfected entity toward which both the graphic arts and science have contributed their share. For the author shows us the artist on the one hand searching for the underlying forms which determine the surface modulations both of bodily and facial movement, and on the other the medical investigator studying with equal interest the deeper structures the blood vessels nerves and viscera. Moreover, he shows us also certain striking variations from, or rather combinations of, these two forms of approach. They are present in the artist investigator engaged with deeper structures as well as surface forms, and making contributions whose importance to medicine may surprise those who are unacquainted with the fuller researches of the modern medical historian, and to balance this type in the physician draughtsman who delineates his own discoveries.

The historic field is divided into six periods each distinguished by definite characteristics. Notable anatomists, or artist illustrators, are then considered in their chronological order—Mundini Da Vinci Carpi Vesalius and many others. According to Choulant Da Vinci's work is largely confined to studies of surface anatomy but in a foot note, Dr Garrison refers to hundreds of detailed drawings which justly entitle this great Florentine to be considered the founder of physiological anatomy. Moreover although due reference is made to Vesalius the father of modern anatomy in general again, it is Garrison who states that genuine anatomic illustration arose not in didactic hand drawings made by physicians but without didactic intention in the sculptures and figure paintings of the great Florentines.

The text is illuminated by interesting illustrations which are especially profuse in a chapter contributed by the translator on the Manuscript Illustrations of the Pre-Vesalian Period.

H J SHANNON

**A TEXT-BOOK OF BIOLOGY FOR STUDENTS IN GENERAL MEDICAL AND TECHNICAL COURSES** By WILLIAM MARTIN SMALLWOOD PhD Fourth Edition thoroughly revised Octavo 308 pages 229 engravings Phila. and New York Lea & Febiger 1920 \$3 50

That this edition is a genuine revision is disclosed by the fact that it contains less pages, less engravings and fewer colored plates than the one issued in 1918 and reviewed in these columns at the time. It is interesting also to notice the changes in the text the transpositions and rearrangement of both chapters, text and illustrations. The author shows himself to be particularly painstaking like an artist who lovingly adds here takes away there smooths over a glare and deepens or lightens a nuance somewhere else until one wonders if he will ever be satisfied. While intended primarily for students Dr Smallwood writes in such fascinating style that even a busy practitioner might profitably find it a source of relaxation and profit withal. The reviewer's good opinion is expressed on a former occasion is increased by the perusal of this edition.

A F E

THE STORY OF THE AMERICAN RED CROSS IN ITALY  
By CHARLES M. BAKEWELL. Illustrated. McMillan  
Company, New York 1920 \$2.00

In thinking of the wonderful work done by the American Red Cross during the war, one is apt to consider the service on or near the battle front in France as the big phase of its activities. The dramatic events which occurred in France tended to obscure the other war areas, yet they all required the same needs which the American Red Cross as an auxiliary to the United States Government, was called upon to provide. The book written by Charles M. Bakewell describing the work performed by this organization in Italy indicates the type of service given in practically every country in Europe. As elsewhere, it was necessary to give aid both on the firing line among the soldiers, and in the towns and villages outside of the battle zone. Probably the big work of the American Red Cross in Italy was among the civilians, for the prompt aid at the time Italy was in sore distress bolstered the morale of the soldiers when they knew that the loved ones they had left behind them were being cared for.

As stated on the book cover, this volume tells not only of the establishment of relief centers, work houses, traveling canteens, and large hospitals, but also of the building of entire cities for the accommodation of refugees from the Piave and from Venice.

It is a book which will interest all who subscribed to this wonderful organization during the war, and that means nearly everyone in the United States.

A E S

HIGH FREQUENCY APPARATUS DESIGN, CONSTRUCTION AND PRACTICAL APPLICATION. By THOMAS STANLEY CURTIS. Second Edition, Revised and Enlarged. Price \$3.00. Norman W. Henley Publishing Co., New York City 1920.

This practical work on the construction and application of high frequency and X-Ray apparatus could be read with benefit by any one who has not had the advantage of training in the construction and use of these therapeutic instruments. It is a highly scientific explanation of these instruments written in simple every day language, and would be a valuable addition to the working library of any physician.

W

LIFE, A STUDY OF THE MEANS OF RESTORING VITAL ENERGY AND PROLONGING LIFE. By DR. SERGE VORONOFF. Director Experimental Surgery Laboratory of Physiology, College de France. Translated by EVELYN BOSTWICK VORONOFF, Assistant Laboratory College de France. Price \$3.50. By E. P. Dutton, New York 1920.

The most that can be said for Voronoff's book is that it unwittingly (?) supplements and confirms, through laboratory research carried out upon goats, the overshadowing and much earlier achievements in American clinics of the pioneers Lydston and Morris, carried out upon human beings and carefully recorded in the literature. The boasts of the translator and publisher with respect to Voronoff's exclusive place in this field, his pre-eminent priority, his "discovery," and the "epoch-making" character of his work, constitute the most amazing buncombe.

How Voronoff can in this book coolly ignore the facts in the case concerning his own belated and subsidiary part in this field of experimentation, and leave the reader to infer that he alone laid this particular endocrine cornerstone, we think constitutes an interesting study in psychology and ethics that cannot be made to reflect anything exactly glorious upon the curiously ambitious Frenchman.

The book, therefore, is chiefly remarkable for what it does not contain. It even appears, we learn from other sources, that Voronoff has only recently performed the operation of sex gland grafting upon a

human being. When he began, in 1917, the experiments which led to the formulation of a mere theory so far as man is concerned, Lydston had published his book recording the completion of six years of actual practice on human beings.

It is true that Voronoff himself has not explicitly said that he was the first to graft the sex glands, but it is clear that he must be held responsible for the claims of his publisher and translator, the latter of whom, in an interview granted to Dr. Van Buren Thorne, and published in *The New York Times* of August 1, last, went so far as to say that "we have made the biggest stride in scientific medicine in fifty years."

A great stride has surely been made in the way of investing the author of a work good in itself with a nimbus of cheap claptrap.

A. C. J.

THE WAR HISTORY OF UNITED STATES ARMY BASE HOSPITAL No 61, A E F, Edited by MAJOR ROYALE H. FOWLER, M.C. Octavo, 168 pages. Illustrated 1920.

Of many of the Base Hospitals which did such splendid work in the late war only scattered papers from individual members of the personnel have found their way into print. Many items of interest in connection with our war Base Hospitals, both from a historical and medical standpoint, will be lost or forgotten because no printed record has been compiled of their work.

The present volume is the first history of a Base Hospital, published in book form, which has come to our notice. This plan of Base Hospital No 61 in publishing a detailed account of its organization, personnel and work, is to be commended and is worthy of adoption by other similar organizations. The compilation of such a volume is no little task, and Dr. Royale H. Fowler, its editor, is to be congratulated upon the very interesting manner in which he has brought together the descriptions of the various departments of service connected with this organization.

Written in interesting style interspersed with a number of illustrations and neatly printed and bound, the volume presents in permanent form a detailed record of service and accomplishment which reflects credit upon its compilers as well as upon every member of Base Hospital No 61.

THE ENDOCRINES. By SAMUEL WYLLIS BANDLER, M.D., F.A.C.S., Professor Gynecology, N. Y. Post-Graduate School and Hospital. Octavo of 486 pages. Phila. and London W. B. Saunders Co. 1920. Cloth, \$7.00 net.

The last decade has confronted us with as complex a problem as any that modern practice brings, when it makes us reckon with the endocrines. More than ten years ago, patients were fed ovarian and thyroid extracts, and suprarenal substance was recognized as a powerful vasomotor constrictor, and that was the limit of our glandular therapy. Now every few days, from as far as the Pacific coast comes a postal with an answered questionnaire from which we learn to cure all ills and perpetuate life.

This work, however, comes from the pen of a gynecological surgeon of recognized standing, and gives his theories and impressions from a varied and extensive practice.

A detailed review is almost impossible, as it would resolve itself into a discussion, point by point, in a subject that is so far from standardized as to make it impracticable.

Whether or not one can agree with the author's reasoning, and whether or not his conclusions are rational, this work is one to be reckoned with, and should be on the shelves of every gynecologist. Its view of the subject is comprehensive and it is written with the forcefulness that characterizes all that Bandler produces.

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL. 21, No 4

NEW YORK, N. Y.

APRIL, 1921

## THE USE OF THE BRONCHOSCOPE IN THE DIAGNOSIS OF TUMORS OF THE MEDIASTINUM \*

By JOHN D. KERNAN, Jr. M.D.,  
NEW YORK CITY

ONE feels much like apologizing for reading a paper on bronchoscopy before an assemblage of laryngologists, so frequently has this subject been brought up in recent years. Yet while certain aspects, such as the use of the bronchoscope in the recovery of foreign bodies, have been thoroughly exploited, the author feels that some phases of the subject have been neglected. We all know that foreign body work is a specialty in itself, and should be reserved to the highly expert. The use of the bronchoscope, however, for the ordinary purposes of examination and diagnosis, is something with which every laryngologist should be familiar. It is this routine use which is not practised as it should be.

In the treatment of this subject no claim is made to originality. All about to be said is familiar to those who practise bronchoscopy. But as all laryngologists do not use the bronchoscope as they should, something of this may be new to some.

To illustrate how useful the instrument under discussion may be, I shall consider one limited field, namely, tracheoscopy and bronchoscopy in the diagnosis of tumors of the mediastinum. It must be understood that the bronchoscope will not replace the X-ray and physical examination of the chest. But the bronchoscopic findings serve to fill out to a very great extent the picture shaped by other methods and occasionally make possible a diagnosis otherwise obscure.

If you will kindly recall the anatomical relations of the trachea and the bronchi, you will see that many important structures are related to them. For instance, the esophagus has contact with the posterior wall of the trachea for its full length. On either side are the pleurae and lungs, numerous lymphatic glands, and the aorta with its great branches to the head and upper extremities. The ventral surface is related to the thyroid gland, the thymus, the aorta,

and left innominate vein. Each main bronchus at the hila of the lungs is surrounded by lymphatic glands, and the left bronchus is related to the auricle of that side of the heart.

Now, I wish to make two points in regard to tumors affecting these structures, first, that they frequently make changes in the bronchoscopic appearance of the trachea and bronchi, second, that the changes are in location and character more or less constant for the particular organ diseased. I shall illustrate these points by

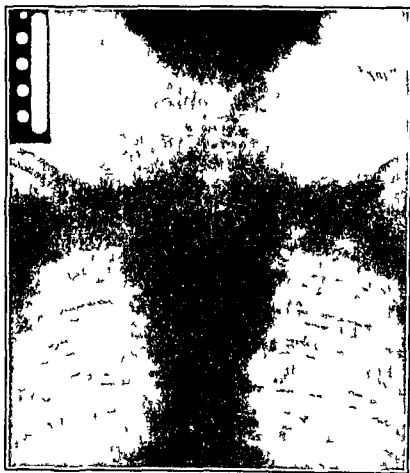


FIG. 1

quoting a few cases and showing slides of the X-ray and bronchoscopic appearance of each case.

This first slide (Fig. 1) is merely to show what a remarkable change in the course of the trachea a tumor can make, and yet allow it to continue to function. You will at once understand that to one looking down through the trachea the lumen would appear completely blocked. I should not advise passing a bronchoscope beyond this tumor, which happens to be an aneurism. Every observation necessary could here be made with a laryngoscope without passing into the trachea.



FIG 2

The first case I shall quote (Fig 2) is what I classify as a dyspnoea case. It is that of a man 64 years of age, who gave a history of hoarseness and increasing dyspnoea for one month. He came to us with a diagnosis of cancer of the larynx. The general physical examination showed a worn, poorly nourished man, whose appearance suggested arterio-sclerosis. No sign of tumor in the chest. Laryngeal examination showed an immobile right vocal cord. This struck us as peculiar, as the left is so much more often affected than the right. When the tracheoscope was passed, this is what we saw—a pulsating tumor on the right side of the trachea almost obliterating the lumen. From its pulsating character we made the diagnosis of aneurism, and from its location, at the level of the first rib, we made the diagnosis of aneurism of the innominate artery. The X-ray confirmed the diagnosis, and also showed a dilated aortic arch pushed to the left. This man improved considerably on large doses of K I.

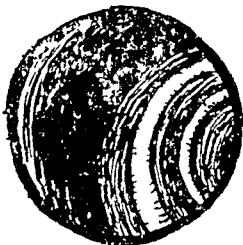


FIG 2



FIG 3



FIG 3

his throat for four weeks. Laryngoscopic examination showed vocal cords immobile in the cadaveric position. Bronchoscopic examination showed a bulging in of the posterior wall of the trachea reaching from the sternal notch to just above the bifurcation,

almost closing the opening of the left bronchus, and to a considerable extent that of the right. Oesophagoscopy showed a compression of the left side of the oesophagus, but no involvement of the wall. The tumor was solid, and extended almost the length of the trachea. It appeared to us that only the lymphatic glands scattered along the trachea could give such a tumor. The X-ray appeared to support our diagnosis, for, as you see, it shows a dense thickening throughout the mediastinum.

The next case I shall quote (Fig 3) may be classified as a vocal cord case. He was a man of 59, a janitor, who came to the clinic complaining that he had had a cold in

The next case is a cough case (Fig 4). It is that of a man of 40, who complained of having had a cough for many years. He had no symptoms of an active tuberculosis, his general health was fair, and he had lost no weight. His laryngeal examination was negative, and there were no râles over his lungs. The bronchoscope showed the trachea compressed by solid tumors bulging into its lumen from

either side. We concluded from their solid nature and location that these tumors were due to enlarged lymphatic glands and thickened pleura and lung tissue bordering on the trachea, and that the cough was due to irritation of the vagi nerves. The X-ray more or less confirmed this finding.

The next patient (Fig. 5) was a colored man of about 50 who complained of an occasional hemoptysis. He was, at the time of my exami-



Fig. 4

nation in a general hospital and no cause for the bleeding had been found. The lumen of the trachea was triangular as shown on the slide. The swelling on the left side pulsed vigorously. In the ventral angle of the triangle was a mass of granulation tissue capped by fibrin. This was evidently the source of the hemorrhage. The diagnosis of aneurism of the arch of the aorta was made and this was confirmed later by the X-ray examination and the development of the ordinary physical signs of aneurism.

This last slide (Fig. 6) shows the conditions found in a man who came to the clinic complaining of difficulty in swallowing. He had been treated for throat trouble for a number of months, and finally some laryngologist had am-



Fig. 5



Fig. 6



Fig. 7

putated his uvula. If that laryngologist had been proficient in the use of the bronchoscope and oesophagoscope he could have saved himself an operation. For 20 cm. from the teeth the posterior wall of the trachea was pressed by a mass which evidently lay between it and the oesophagus. Oesophagoscopy showed at a corresponding level a tumor infiltrating one wall of the oesophagus diminishing its lumen and just beginning to ulcerate evidently a carcinoma.

Bronchoscopy and oesophagoscopy, merely for examination purposes are not difficult procedures. They can be mastered with a little practice, and will certainly pay for the trouble. They can be done in the office though better in a hospital. I believe in a thoroughly aseptic technique which I am going to illustrate by some moving pictures.



TRACHEA



OE-SOPHAGUS

Fig. 8



## THE TREATMENT OF INTRANASAL SUPPURATION

By E. ROSS FAULKNER, M.D., F.R.C.S. Eng  
NEW YORK CITY

THE treatment in intranasal sinus disease, like that of many other diseased conditions, falls naturally into two subdivisions, viz operative and non-operative. The former is the one most discussed, yet it is only on a small proportion of all cases that it is necessary, and these are usually chronic cases which have not been treated during the acute stage. In our treatment of suppurative conditions everywhere, we aim to promote free drainage, and nowhere in the body is this more difficult to attain than in the various intranasal sinuses.

The natural drainage openings are not placed in a dependent position and the expulsion of secretion is effected by the action of cilia by aspiration from forced inspiration and expulsion by forced expiration. When any inflammatory process occurs in the nasal mucous membrane, the natural drainage is apt to become occluded and symptoms of acute sinusitis may supervene, either by spread of the infection into the sinuses or by secondary infection of the retained secretion, or, again, in many cases, the sinusitis is the primary lesion. In our attempts at treatment we see that the first attempts must be directed toward restoring the patency of the natural openings and of emptying the cavities of secretion.

At the very onset of an acute inflammation of the nasal mucosa, one may not always distinguish whether there is sinus involvement or not. As a general rule, the more pain and headache, the more likely is sinusitis present, but our treatment should be the same in both cases. During the first 24 or 48 hours, local treatment is not likely to accomplish much and its effect if used is very transient. Opium internally in some form is positively indicated, as this controls the congestion, rendering the patient more comfortable and facilitating drainage. As the discharge becomes muco-purulent or purulent, hot saline irrigations are indicated. For the past two years in office treatment, I use hot saline irrigation carried through the nasal chambers by strong suction. An irrigator containing hot saline solution, tem 100 to 105 is placed level with the patient's head. A nasal tip to fit the nostril is attached to rubber tubing connected with the irrigator. This is put into the nostril of one side, a similar tip connected with a large wash bottle is inserted into the other nostril and the wash bottle is attached by tubing to the suction pump. By alternately pinching and releasing the inflow tube, you get the benefit of both suction and irrigation. One can use plain

suction after this, but they will find there is nothing more can be extracted. This treatment can be carried out at home by the patients if they purchase a water suction apparatus, or to some extent by the nasal syphon, but one can do it more effectually in the office. It is often well to shrink up the nose with weak cocaine before applying the suction irrigator.

After washing out the nose in this way, I give a post-nasal douche of 10 to 20 per cent argyrol freshly made. This tends to effect the more rapid resolution of the submucous infiltration.

This is the substance of non-operative treatment which I carry out in all acute and sub-acute cases, and in many chronic cases. It is surprising how many chronic cases, provided they are not of too long duration, will respond. Of course, in many of these, some operation, such as a submucous or partial, turbinectomy may have to be performed before this treatment will promise much result, but after the anatomy has been corrected, one may persist in treatment for a long time, with promise of ultimately giving permanent relief.

We will now pass to the consideration of the operative treatment.

The operative treatment of intranasal sinus suppuration has made great progress in the last twenty years, but one cannot say that the subject is by any means exhausted. No orthodox standard of either indications or methods seems to have become established and our knowledge in regard to the various pathological processes which take place in sinuses is still indefinite. The principles of treatment must always depend upon the pathological conditions, and as long as we are lacking in knowledge of those conditions so long will we be in doubt about our treatment.

The process of repair is another factor which must influence our treatment. This process is determined largely by the extent of original injury by the nature of the tissue involved and by the anatomical condition of the affected part. Thus we find in severe lesion of the accessory sinuses this process is a slow and tedious one, and owing to the fact that the region is difficult to reach we are unable to assist Nature in her efforts as easily as we can in many other parts of the body. In the soft tissues of the body a suppurating cavity closes by contraction of its walls as well as by the formation of granulation tissue, but in bony cavities this contraction cannot occur and there is also a limit to the depth of granulation tissue which can be properly nourished. When they grow beyond this limit they become oedematous and break down. If, however, they remain healthy until mucous membrane, or skin, entirely spreads over them the repair is complete. In the case of a cavity in bone which is freely accessible such as the tibia

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 25, 1920.

or even the mastoid, one can assist nature by a plastic operation, or by skin grafting, and the granulations can be easily kept in a healthy condition. In the nasal sinuses, however, we are unable to exercise this care and so we must make conditions as favorable as possible for nature to carry on the process alone. Where the lesion in the sinuses has been severe enough to injure the mucous membrane beyond its power to recover we have potentially an abscess cavity in the bone and our operative procedure must aim to obliterate the cavity or to establish conditions for epithelium to spread over its walls after they have become covered with granulations. If on the other hand the mucous membrane is not damaged beyond the possibility of recovery our treatment will aim to promote free drainage and cleansing of the cavities either by reducing the obstruction to natural drainage or by operative measures. The diagnosis of the various pathological conditions which demand operative interference in sinus disease is a difficult matter and great care should be exercised in determining the nature of the operation indicated, and where there is any doubt the minor operations should first be tried. We must endeavor to associate in our mind the clinical symptoms which represent certain pathological changes and govern our operative treatment by this association.

As a guide in the teaching of students I have endeavored to tabulate the indications for operation of sinuses based on clinical symptoms as follows:

- 1st Certain acute cases with very severe persistent pain and high temperature, or symptoms pointing to extension to the orbit or cranial cavity
- 2nd Chronic cases with profuse purulent discharge which will not clear up on treatment
- 3rd Cases with slight discharge but with frequent acute exacerbations, with chronic headache and malaise
- 4th Cases with ozæna
- 5th Cases with nasal obstruction due to polyp, especially if associated with asthma
- 6th Cases where suppuration in sinuses acts as a focal infection usually manifested by eye or joint symptoms
- 7th Cases with involvement of nerves, proximal to the sphenoid and posterior ethmoid sinuses. The nerves most commonly affected being the optic or sixth, but the third fourth or fifth may sometimes be involved

8th Cases with signs of extension to the orbit, or cranial cavity or with an external fistula indicating necrosis

9th Cases with the mucocele either causing nasal obstruction or pointing externally

In the first group of cases there is obstruction to the natural openings of the sinuses by the swollen membrane, and the cavities filled with purulent or mucopurulent secretion. Treatment in these cases will usually restore the natural drainage. If this does not occur in the case of the antrum or sphenoid, puncturing and washing out the cavity will usually be sufficient. If the frontal remains blocked and severe pain continues over a week the anterior end of the middle turbinate may be removed. If suppuration in the ethmoids or frontals points externally or into the orbit, it can best be treated by an external operation which should be as conservative as possible.

In the second group of cases there is a swollen infiltrated mucous membrane with impairment of function and obstruction to the natural openings of the sinuses. Operations to establish free drainage should be performed on the antrum and sphenoid with exenteration of the ethmoid and drainage established from the frontal.

The third group requires the same operative treatment as the second, but may be limited to one or two of the sinuses where pain is localized.

In the fourth group there is atrophy of the mucous membrane with loss of function, hence the discharge tends to accumulate in the form of crusts with resulting foul odor. This process may be in various stages in different sinuses. In young subjects the disease is limited to the membrane, and a radical intranasal operation will produce a cure in many cases. In older subjects there is usually some osteitis present so as to render operations very difficult, and the results are not satisfactory. The osteitis may almost obliterate the various sinuses if the process has lasted sufficiently long. Even in the older cases if ozæna is present an attempt should be made to get a free intranasal opening into the antrum.

In the fifth group of cases, if only the ethmoids are involved an intranasal operation may suffice, but may have to be done several times. But if all the sinuses are affected a radical frontal with exenteration of ethmoids, clearing out the sphenoid will be necessary, at the same time a Caldwell-Luc operation on the maxillary antrum should be performed.

In the sixth group the nature of the operation will be determined by the sinus affected but free drainage will usually be sufficient to relieve the condition.

In the seventh group the posterior ethmoids and sphenoids should be freely opened and drained

The eighth and ninth group require an operation by the external route in most of cases, and the extent of the operations will be determined by the conditions found

Now, as we have outlined the indications for operations based on the symptoms and corresponding pathological conditions, let us briefly consider the various methods of operating. We will first consider the intranasal method. This can be used in almost all conditions of diseased ethmoids and sphenoids. There is an exception where the ethmoid cells extend laterally into the roof or floor of the orbit, and this anatomical condition will usually be indicated by the X-ray. In ethmoid sinuses, an enlargement of the individual opening is impossible so that the only operation is a radical exenteration to throw these spaces into one cavity with complete removal of middle turbinate to facilitate drainage of this cavity. This is best accomplished by the method described by Dr. Mosher. The sphenoid can be opened at the same time and as wide an opening as possible is advisable to give dependent drainage, or to clean out polyp. In disease of the antrum a wide opening is also essential. Most of the external wall of the inferior meatus should be removed, so that the antrum can be washed out by intranasal irrigation without resorting to cocaine and the painful process of pushing a canula through granulations around a small opening as one sees done so often. The large opening is especially imperative where there has been degeneration of the mucous membrane, and the healing process must take place by mucous membrane from the nose spreading over the affected area after granulations have covered the surface. The same argument obtains in the sphenoid. The mucous membrane must have a wide margin from which to spread over the inside surface.

The frontal sinus can be drained by intranasal operative measures in most of cases. The simplest operations to promote this will be the removal of the anterior end of the middle turbinate. If this does not suffice exenteration of the ethmoids, especially those anterior cells behind the nasal process will usually give good drainage from the floor. No attempt should be made to enlarge the frontal opening, as the only increase in the size of the opening must be made forward. This is the posterior part of the nasal process, and is very hard bone, so the amount of the enlargement is very limited and is more than counter-balanced by the subsequent reaction. Once one has cleaned out the anterior ethmoids they can nearly

always pass an applicator or probe easily into the frontal. At that the operator should stop.

Let us now consider the external operations. These do not seem to be done as frequently as they were a few years ago, probably owing to better intranasal methods having been developed. Nevertheless there are some cases which can only be cured by this method. It may be necessary to make an external opening in severe acute cases of frontal or ethmoid sinusitis where supuration is threatening to extend to the cranial cavity or into the orbit. In these cases a simple opening, with removal of enough bone for drainage, is all that should be done, with the establishment of intranasal drainage at the same time. In chronic cases the external operations to promote drainage is not often indicated, though in some very narrow noses, where intranasal drainage is impossible, the Lothrop operation may give good results. The external radical operation is indicated where intranasal methods have failed, and there is persistent pain with osteitis, or the cavities filled with polyp. This operation aims at total obliteration of the cavity, and the method described by Killian is the one most practised. It has some disadvantages, however. There is always a space to fill in under the bridge which may be the seat of subsequent trouble, and also the bridge itself may undergo necrosis. Great care must be exercised in leaving a good periosteal covering on the bridge. The space above must be opened widely and the edges of the bone at the very limit of the cavity thoroughly beveled to allow the soft tissue to be pressed down and completely obliterate the cavity. The floor must also be removed to the utmost limit to let the soft tissue from the orbit fill up the space below. The small space under the bridge will then fill up by organized blood clot. If, however, drainage is maintained into the nose this space fills with granulation tissue and the final stage in the healing process is accomplished by mucous membrane covering over the under surface of these granulations. In small sinuses I prefer to take off the whole anterior wall and floor, taking off the nasal process close to the septum. The whole cavity is cleaned out and the mucous membrane is removed from the upper part of the septum in front. The cavity is then packed the same as one would pack a mastoid through the external wound. Obliteration of the cavity takes place by granulation forming from the under surface of the soft tissue and from the orbital tissue. They also begin to form from the external surface of the inner plate after three or four weeks. If care is taken not to let the skin edges turn in, the cavity fills up level and leaves

scarcely any deformity. The process will take six or eight weeks, depending upon the size of the sinus. I have done this in three cases with satisfactory results.

The external operation on the antrum are the Caldwell-Luc and the Denker. The latter I have never done and I can scarcely believe it would ever be necessary. The Caldwell-Luc is indicated where the antrum is filled with polyp or where osteitis is present accompanied by exostosis and severe pain. In doing this operation it is necessary to make a large opening through the anterior external wall so as to give a full view of the inside of the cavity. It can then be treated according to the pathological conditions present. I removed the inner wall with a chisel which I devised for an intranasal drainage operation. A portion of the middle of the inferior turbinate has to be removed at the same time. It is quite probable that removing of the diseased condition will render the walls of the cavity entirely bare. The healing process will then go on by granulation tissue covering the walls, and eventually epithelium from the margin of the intranasal opening will spread over the granulations. This probably takes months or years. At many times the granulations form and become exuberant necessitating further operative procedures. Since one cannot pack this cavity continually as in a radical mastoid we just have to trust to nature to carry on the healing process. Lavage of the cavity during healing is not advisable unless it becomes infected. The healing process in the sphenoid is analogous to that in the antrum. In the ethmoid the smooth space left in the lateral wall after operation soon covers over with granulation tissue and epithelium from the middle meatus spreads over it. Exuberant granulations may form here and may have to be scraped out one or more times. Where they continue to form it is almost certain that pus is flowing over the surface from the frontal, or that some of the cells have not been properly opened. No result will be obtained until further operation is done.

It is superfluous to say that operations to correct bad anatomy in the nose are always indicated. Where patients have had one or more attacks of sinusitis, or as a preliminary to treatment or operations on the sinuses themselves submucous, or partial turbinectomy often both combined, are the usual procedures adopted for this purpose. I very rarely do an intranasal sinus operation without first removing the septum in its upper part at least.

## THE EFFECT OF INTRANASAL CONDITIONS ON THE OCULAR MUSCLES \*

By EDWIN S. INGERSOLL, M.D.  
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THE subject of the relation of intranasal conditions to ocular disease has received considerable attention for a great many years. As early as 1817 Beer, of Vienna recognized the important bearing of inflammatory processes in the nasal cavities on ocular pathology, and since that time there have been published a large number of monographs dealing with various aspects of the subject.

During the last ten years there has been a great advance made in our knowledge of the pathology of the nose and its accessory sinuses due to the exhaustive laboratory and anatomical researches and painstaking observation and clinical study of such men as Skillern, Sluder, Loeb, Risley, Brawley and others. This work has made clear much that was hitherto obscure and has opened the way to the belief of many nasal and ocular conditions by surgical means which twenty years ago were considered beyond the realm of possibility.

As a result of these investigations and the introduction of vastly improved technique, the importance of rhinological pathology to ocular disease has been unquestionably established and a careful rhinological examination has come to be an important part of the diagnostic routine in many of the commonly encountered eye diseases. This procedure will oftentimes locate the cause of troublesome cases of iritis, corneal or ciliary inflammation which might otherwise be easily overlooked.

We as rhinologists, have also come to rely on the ophthalmologist in the diagnosis of nasal conditions as, for instance, in determining the enlargement of the blind spot as indicative of disease of the accessory sinuses.

The reason for this close association between the pathological conditions of the nose and eye is not difficult of explanation when the anatomical relation of the structures under discussion are considered. The orbit is practically surrounded on three sides, above, below and medially by frequently inflamed nasal structures and in several places the separation of the two cavities is accomplished by extremely thin walls, rendering the intra-orbital structures open to attack.

Beginning posteriorly on the medial side there is the lateral wall of the sphenoidal sinus just anterior to which is the posterior group of ethmoid cells. The partitions separating these structures from the orbital cavity are relatively thick, but the anterior ethmoid cells are separated from the intra-orbital space by the paper thin os

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 23, 1920.

planum and in certain cases by simply a periosteal membrane where dehiscence in the bone have occurred. The roof and floor of the orbit, forming as they do, the floor and roof, respectively, of the frontal sinus and the maxillary antrum, offer more solid barriers to the encroachment of inflammation on the orbital contents than does the more delicate medial wall, but involvement from these two directions is not uncommon.

Disturbances of ocular muscle balance due to intra-nasal pathology, with the exception of the reflex cases and those which are caused by toxic absorption where the focus of the infection happens to be in the nose, are due to the close anatomic relation referred to above.

A definite classification of the cases of ocular muscle imbalance coming under this heading is difficult but for purposes of convenience, they may be divided into the Inflammatory and Mechanical, recognizing, however, that there is an overlapping in a great many instances and that this division merely indicates the predominating etiological factor.

By Inflammatory is meant those cases caused by extension through blood vessels or lymphatics, or by direct continuity, of primary intra-nasal inflammation, and where the effect is brought about by inflammatory irritation rather than by the pressure of a gross pathological abnormality.

Such cases are the result of the intra-nasal condition acting in one or both of two ways: by directly attacking the bodies of the muscles themselves where they lie in close apposition to the bony walls, or by irritation or destruction of the motor nerve before it reaches the muscle. The latter condition most frequently arises where sphenoidal sinus inflammation affects the sixth nerve as it passes in the groove in the orbital side of the sinus wall, resulting in a palsy or paralysis of the external rectus.

It is probable that many of the external muscle involvements hitherto referred to under the safely vague term of "rheumatic" are caused by direct irritation of the bodies of the muscles which lie close to the walls of the inflamed ethmoid cells. Even in relatively mild inflammations, the extreme delicacy of the separating partitions permit of the formation on the orbital side of a certain degree of periosteitis sufficient to cause irritability of the muscle groups lying along the inner and upper walls, the most frequently affected being the internal rectus, superior oblique, superior rectus and levator palpebrae.

The extent of the muscle involvement is dependent in general on the location and severity of the intra-nasal condition and it is sometimes indeed difficult to locate the cause when it occurs in the deeper ethmoid cells. Certain cases, however, are extreme, as the one reported by Holmes where there was complete paralysis of all the external muscles with complete ptosis which

showed marked improvement after drainage of the ethmoids, frontal and antrum of the affected side.

An illustrative case is that of W. C., age 29, first seen August 6th, 1919 with history of diplopia for one month previous. Patient gives positive venereal history both for syphilis and gonorrhea. Complaints of a "bad" nose with large amount of drainage and inadequate nasal breathing. Examination showed 20/20 vision with each eye. The left eye was turned down, out and forward 3 mm beyond the right as measured with the exophthalmometer. A slight thickening was to be felt behind the orbital rim at the nasal angle suggesting involvement in the anterior ethmoid region. The motility of the eye was lessened in the upward and inward directions.

Wasserman negative on two examinations, urine negative.

Nasal examination showed a large number of polyps and a considerable quantity of pus draining from the left ethmoid region. On August 25th the polyps were removed and the anterior ethmoid cells curetted, allowing drainage for a large amount of pus. Ten days later more cells were opened and the sphenoid cleaned out.

For two weeks there was no improvement in the eye condition, but at the end of this period improvement began and the area of periosteitis under the orbital rim was noticeably diminished. Three months later the eye movements were practically normal and he was able to work and read without discomfort.

This is a case which I believe to be the result of encroachment of an inflammatory process within the nasal structures upon the orbital contents, rather than one caused mechanically by the pressure of the existing periosteal swelling.

Mechanical interference with the motility of the globe arising from disease in the nose forms a group of cases which are more obvious in their etiology than those which may be classed as inflammatory in their origin. The diagnosis of the latter group is, in many instances, extremely difficult, inasmuch as the causative factor may be a small collection of pus sequestered in an obscure ethmoid cell or in a difficulty approached sphenoidal sinus. Until we have a more practical working knowledge of the inter-relation of ocular and nasal inflammations and have determined with considerable certainty which cases of eye disease are in all probability of nasal origin, many of them will not be recognized early because the complete exenteration of the ethmoids and adequate drainage of the sphenoid in order to locate the possibly infected deep area is not a procedure to be lightly undertaken in the nature of an exploratory operation. It is greatly to be desired that further study will establish which cases of ocular disease warrant a thorough search for hidden nasal trouble where the ordinary non-surgical

procedure fails to reveal the location of the inflammation

In the case of the former group, that is, those cases in which the globe movements are restricted by the presence of a mass of sufficient size to cause mechanical interference, the intra nasal diagnosis is usually not so difficult because of the more gross nature of the lesion although the cure of the case may not be so simple

There is considerable variety in the intra nasal pathological conditions which cause displacement or loss of motility of the eyeball. Areas of periostitis resulting from sinus inflammation may often reach considerable size and in chronic cases cause a permanent protrusion within the orbit. Gummata, mucocoeles and sarcomata are not infrequent occurrences within the nasal accessory sinuses and their extension into the orbit is sure to result in lessened motility, both from actual pressure in the globe and by destruction or irritation of the actuating nerves and the muscle tissues itself. Necrosis of the sinus walls with fistula formation into the orbit followed by exudative processes and oedema will have the same effect and it is not always easy to determine whether or not the condition is primarily nasal or orbital.

The following case illustrates the point, although double vision was complained of only in the early stages of the case and eye movement became normal as soon as drainage was established. An Italian, age 35, presented himself to an oculist because of a swelling about the right eye, there was no history of injury. The upper lid was moderately swollen, red and fluctuating on palpation. An incision was made in the lid at the point of greatest tension and a large amount of pus evacuated. The swelling very soon subsided and the drainage stopped, but after a few days it was back to its original size. The incision was opened and more pus obtained and a drain put in. The discharge of pus continued in greater amount than was consistent with an abscess of the lid, and the case was referred for rhinological examination.

This examination showed the septum to be deviated high upon the right, causing pressure in the middle turbinate sufficient to press it tightly against the lateral nasal wall. The turbinal mucous membrane was not particularly engorged. Shrinkage with adrenalin allowed the passage of a small probe into the frontal nasal duct, but not completely into the sinus. No pus was found and suction failed to produce any. X-ray showed an area necrosis in the floor of the frontal sinus.

A wide incision was made in the lid and a probe easily entered the frontal sinus through a hole in its floor, about  $\frac{3}{4}$  in behind the orbital rim. A gauze drain was introduced. A submucous resection was then done the anterior tip of

the middle turbinate removed and the frontal nasal duct enlarged. A moderate amount of purulent drainage was obtained and in two weeks the local condition had cleared up. There had been no definite history of frontal sinus disease although the case must have been of some duration. The chief complaint had been of pain and swelling in the upper lid and the diplopia complained of was not extreme and was present only while the abscess in the lid was prominent and disappeared when drainage was established.

The following two cases are examples of impaired globe movements resulting from mechanical obstruction.

H. M. female, age 18. Complained of pain over the area of left antrum for past three months which she thought was neuralgia. There was no history of injury. There was moderate amount of muco purulent discharge from left side of nose and some swelling in the cheek over the left antrum and this area was tender on pressure. The antrum was punctured under the lower turbinate and a small amount of muco-purulent material was washed out. A Krause operation was done and the antrum discovered to be filled with a polypoid mass which on microscopical examination was found to be sarcoma. Up to this time there had been no complaint of eye involvement. Three months later there began a slight ophthalmos, which progressed rapidly for three weeks with rotation of the globe forward, down and out and marked diplopia developed. Death occurred six weeks later and autopsy showed extension of the growth through the ethmoid plate and into the frontal lobe of the brain.

The second case is that of a boy, age 15, who came to the hospital because of a swelling between the eye and bridge of the nose on the left side. There was double vision beginning at the same time the swelling was first noticed. No pain or tenderness was complained of but at times there was a dull ache in the region of the swelling.

Examination showed a large soft swelling at the inner margin of the orbit extending to the root of the nose. The eye was pushed forward, down and outward. The muscular movements were normal except upward and inward. There was diplopia in the primary position increasing in eye up and to the right.

A curved incision was made below the inner extremity of the eyebrow and the upper lid partly detached and turned downward. The contents of the mucocoele were evacuated and a free communication made with the nasal cavity in the anterior ethmoid region. One week later the double vision had disappeared and the eye had returned to its normal position.

Among conditions other than growths arising from within the nose might be mentioned orbital

abscess resulting from direct extension of pus from any of the nasal accessory sinuses and emphysema following ethmoid operations when part of the separating wall has inadvertently been taken away. It is a matter of both surprise and chagrin to have the eye suddenly bulge when a patient blows the nose violently after such an operation. Fortunately it is usually not a serious complication.

Following a radical, external frontal sinus operation, happily more frequent in the past than now, the trochlea was often disturbed and not properly reattached, resulting in improper function of the superior oblique, to the great inconvenience of the patient.

The fields of endeavor of the ophthalmologist and rhinologist are apparently coming closer together which is a desirable circumstance for both. The oculist has long been of use in a consulting capacity in connection with general medicine in a wide range of conditions from nephritis to intra-cranial lesions. The increased knowledge of the general effects of focal infections had helped to enhance the status of the rhinologist as a consultant, and the future will undoubtedly demonstrate the increased usefulness of his work in assisting to solve certain ophthalmological problems.

## CHRONIC TONSILLAR INFECTION \*

By T. AVERY ROGERS, M.D.,  
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“THE primary focus of acute rheumatic fever, endocarditis, chorea, myositis, glomerulonephritis, peptic ulcer, appendicitis and chronic deforming arthritis, as examples, is usually located in the head and usually in the form of alveolar abscesses, acute and chronic tonsillitis and sinusitis.”

This statement was made by Frank Billings<sup>1</sup> several years ago in his Lane Lectures on Focal Infection and presented a fact of great importance in a way that aroused much discussion and divergent opinions among medical men.

The importance of focal infections as a cause of chronic disease is now generally recognized and is being supported by a great deal of laboratory investigation and voluminous clinical reports. Although the possible sources of focal infections are many the great majority of infections originate in the head as stated by Billings. The three danger points in the head are the tonsils, the teeth or gums and the nasal accessory sinuses.

Investigations seem to show that free drainage of pus cavities in these three locations eliminate largely the danger of absorption of toxins and micro-organisms and render them comparatively harmless.

When the pus is confined in bony walls, as about the teeth in the alveolar processes, there is great probability that the toxins and bacteria will be carried into the lymph and blood-vessels and result in general systemic disease.

So in chronic infections of the tonsils the crypts, which are the drainage canals, become occluded by inflammation or hypertrophy, or by an incomplete removal of tonsillar tissue, by action of cautery or in some other way, and the deeper portion of the crypt near the capsule becomes a closed cavity surrounded by a retaining membrane. Anaerobic or partially anaerobic bacteria and their toxins are here developed and are transmitted by blood and lymph vessels to the surrounding lymph glands, particularly the deep cervical, and also to the general circulation and so to distant parts of the body, as the synovial membranes, heart and kidneys as well as to nerve tissues.

The hemolytic streptococcus is the most common micro-organism found in the tonsil and it is found most abundantly in the crypts.<sup>2</sup> *Streptococcus viridans* is also very commonly found.

Rosenow<sup>3</sup> who has studied the infection of the tonsil very carefully and has made extensive laboratory experiments believes that the nature of the streptococcus in focal infection of the tonsils depends on the conditions present and that a selective action is developed on certain tissues. The bacteria or their toxins in certain cases attack only heart tissues, in other cases joint surfaces or nerve tissues. Cultures made from a patient with kidney lesions resulting from focal infections and administered to animals will produce kidney lesions. Rosenow is convinced of the selective localizing action of bacteria in transverse myelitis, multiple neuritis, chronic arthritis, myositis, herpes zoster, keratitis and iritis.

Cooke<sup>4</sup> also produces evidence to incline us to believe that sympathetic ophthalmia may be caused by similar selective action of the toxins of focal infection.

The function of the tonsil has never been fully established although several theories have been presented to account for its presence in the throat. The faucial tonsils are diffuse masses of lymphoid tissue which begin to undergo degeneration and present evidence of infection soon after birth. Their function except in early childhood is probably not important and in many cases they are a positive menace. Their early function is probably to supply lymphocytes but this does not continue beyond the early years of life.<sup>6</sup> Some have confidence in the protective theory which claims that the tonsils protect the system from entrance of pathogenic organisms by way of the nose and throat and others claim that a protective immunity is established in tonsillar tissue.

No evidence warrants the belief that the tonsils have any important function after early child-

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 24, 1920.

hood or that the removal of infected and diseased tonsils does the patient any harm or increases his susceptibility to disease. On the other hand every evidence and investigation shows that when foci of disease exist in the tonsil the only safe treatment is to secure their complete removal.

Pathologists tell us that after examination of thousands of diseased tonsils they find the dangerous ones are the small ones that are apparently free of inflammation, and lie hidden behind the anterior pillar and that show no particular evidence of disease on casual examination of the throat by the physician.

C. H. Mayo<sup>8</sup> states that "all tonsils capable of reacting to infection are of good size, 3 or 4 on the scale of 4, and are not the cause of chronic disease but of strictly local involvement, and when inflamed temporarily, develop systemic disturbance."

A decision as to the real condition is most difficult for many physicians, who have but recently come to the knowledge of the dangers of a focus in these cases not realizing that the blood stream is the carrier of the infection. In such cases the localizing trouble in the sciatic nerve or in the joint did not begin there, but arose from the existence of bacteria in a minute pocket, and if that pocket is under tension, the disease is essentially chronic and recurring. The physician examines the throat and says that the tonsils are not inflamed, that they are graded one or two in size and cannot be the source of trouble. We must learn that the dangerous tonsil, as a carrier of disease is the one that is classified one or two, without any effects of local inflammation on its surface."

Focal infections are difficult to positively determine in the tonsils as smears or cultures taken from the surface or superficial crypts are useless in indicating the form of infection which exists in the hidden pockets deep in the structure of the tonsil near the capsule. The organism found on the surface in greatest numbers is usually different from the one found in the infected pockets. Also the nature of the infection changes from time to time and depends on the extent in which the infective material is walled off. The most pathogenic organisms are largely anaerobic but they also become tolerant to oxygen (3).

The focus may exist in a fragment of tonsil remaining from a tonsillectomy or incomplete tonsillectomy, or may be harbored in the occluded crypts as a result of crusting or hypertrophy. In some cases the tonsil is buried and the crypts covered by membrane. The appearance of chronic inflammation is not always present and no positive proof of the presence of foci of infection can be obtained until the tonsil is removed and sections made.

Sometimes the diseased tonsil is indicated by enlarged cervical glands or enlarged glands at

the angle of the jaw. When these are present it should arouse suspicion of the presence of disease.

In a study of cases in a series of 1,000 tonsillectomies performed at the Johns Hopkins Hospital<sup>9</sup> it was found that the tonsils are the most common site for chronic infections that give rise to a hyperplasia of the deep cervical glands near the angle of the jaw.

In some chronically infected tonsils the anterior pillars will be found congested and of a deep livid appearance, which is very characteristic. This appearance may be found in some cases during acute exacerbations of chronic articular infections or other chronic diseases.

Pressure exerted deeply on the tonsil will sometimes express pus and this may be more readily seen if the anterior pillar is retracted. Transillumination of the tonsil has been found of value in the hands of some men in indicating deep abscess cavities.

Often when a chronic focus of infection is suspected elimination of the other common locations such as the nasal accessory sinuses and the teeth is valuable and may point strongly to the tonsils as the probable cause.

Röntgen ray examination of the nasal accessory sinuses and the teeth are very valuable in indicating whether these sites are harboring pus and infectious material.

Pyorrhea may also be found on examination of the gums and is a frequent cause of chronic systemic infection.

Operators have been quite severely criticised for removing tonsils without sufficient examination to find out whether they were diseased or not but I believe it is better to err in that way and occasionally remove healthy tonsils than to overlook or neglect chronic infected tonsils and to allow continued absorption into the circulation of toxins produced in foci of infection in these organs especially as there is no important function attributed to them by anatomist or physiologist. Mild infection of the tonsils is found almost universally but only where closure of the crypts takes place does it become serious and produce toxic material which is disseminated through the system.

The men of the army were supposed to be the select physical representatives of the population in the recent war but medical officers who served in the department of otolaryngology were surprised to find such a large number of men with diseased tonsils. This physical disability was the cause of a great amount of illness and prolonged absence from duty. Soldiers with chronic tonsillitis could not stand prolonged exposure on guard duty in cold rains and wind without developing acute trouble. They were also more susceptible to acute infections as acute otitis media, measles



diphtheria, polio-myelitis, peri-tonsillar abscesses and adenitis

If the frequency of tonsillar infection among the soldiers of the army was a fair criterion of the frequency of the disease among the civilian population it is safe to say that this form of systemic infection is one of the most important affecting our patients, and is frequently overlooked when searching for the source of disease

When a patient presents himself with chronic arthritis, nephritis or heart lesions it is necessary to make a careful examination of the tonsils and teeth part of the routine in order to make an intelligent diagnosis. Such an examination is just as necessary in searching for the focus of infection in myositis, otitis, neuritis, neurasthenia, chorea, herpes zoster, keratitis, iritis, goitre and other diseases. When the source of infection is eliminated by removal of the tonsils or teeth one of the best proofs of the cause is shown by the rapid disappearance of symptoms of disease in the organ involved. Although such improvement does not always follow it does so with convincing frequency

The remedies for chronic diseases originating from foci of infection in the tonsils are two

Autogenous vaccines are sometimes of value in clearing up chronic infections<sup>10</sup>. The vaccine is made from material obtained from the tonsillar crypts. Inasmuch as the organism responsible for the infection is not obtainable from the open crypt but is only present in small, closed cavities near the capsule the vaccine is often not of great value. The simplest and most reliable remedy for chronic tonsillar infections is a tonsillectomy thoroughly and carefully performed, without leaving any fragments which may harbor infective foci in the future

Most operators have their favorite method and particular instruments which they believe are the best. I prefer blunt dissection with the Hurd dissector and a plain snare like the Tyding or Brown

If the preliminary dissection has been thorough no fear need be had as to the result

In children of course a general anaesthetic must be used, but in adults the operation under local anaesthesia seems to me preferable

Tonsillectomy under local anaesthesia can be done rapidly, thoroughly and painlessly and the field can be examined carefully to obviate the danger of leaving fragments of tonsil

Novocain of a 2 per cent solution containing 4 drops of 1-1,000 adrenalin solution is a safe and efficient anaesthetic for local use. After injecting anterior and posterior pillars it is a good plan to use a long straight needle and inject about 4

c.c. external to the capsule of the tonsil while making traction on the body of the tonsil and withdrawing it from its fossa

A preliminary hypodermic of morphine and atropine is usually given. Bleeding rarely follows this method if the tonsil has been thoroughly removed

The establishment of the fact that focal infections are a cause of chronic disease has done a great deal to hasten the day when group medicine becomes an actual necessity

The time has gone by when the general practitioner can efficiently practise medicine without the benefit of laboratory, X-ray and consultants trained in special work. The State recognizes this fact but only in the field of infectious diseases

The best examples of efficiency in the practice of medicine and surgery are furnished by those who are associated with a group of earnest and enthusiastic men. Each man becomes efficient in his own particular branch of the work. Each member of the group is equally important

The diagnosis of the dentist has become very important to the ophthalmologist and the examination of the tonsils and nasal accessory sinuses has been demanded by the internist

Co-operation of a group makes the diagnosis of many a difficult case much easier and the inspiration of team work stimulates each member of the group to renewed effort in conquering disease

Patients suffering from chronic infections often need the combined efforts of the group to solve the mystery of the location of the focus of infection

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# A CASE OF CEREBRAL ABSCESS\*

By JAMES E GAGE  
UTICA N Y

CHARLES A, 18 years old, mechanic Had measles when four years old, with involvement of right ear with suppuration He has suffered with earache followed by discharge more or less frequently ever since, especially when he has had a head cold These attacks have become more frequent and more severe in the past few years The discharge would continue for a considerable time, and have a very bad odor I saw him first October 18, 1919 He had been suffering for a week with very severe earache and pains in the head, both frontal and occipital A physician had been treating him for neuralgia, and said a specialist was not necessary This attack began four weeks before, but the pain of the last week had been worse than anything he had ever experienced

He was drowsy, whether from his illness or from an opiate I did not know, for I was not the first doctor called in that day Examination of the ear showed a canal full of pus, perforation in Shrapnell's membrane, rest of drum intact, no pain on pressure over mastoid, no pain on percussing side of head Patient was sent to hospital for operation Temperature on admission was 98°, P 70, R 18, October 19th Radical mastoid operation was performed under ether The usual skin incision was made The mastoid was entered just behind the spine of Henle On removing the outer table, the knee of the lateral sinus was exposed in this region, being very far forward It was covered with healthy bone, and was normal in appearance Antrum was full of granulations, pus and cholesteatoma Pus was found between roof of antrum and dura Roof of attic had been completely destroyed by necrosis, and the dura in this region was covered with granulations The skin incision was extended upwards through the temporal muscle, and by lifting up the anterior flap a portion of the temporal ridge and squamous portion of temporal bone were removed for an area 1½ by 1½ inches Each time the jaw of the rongeur was inserted between bone and dura pus would exude This area of dura over the temporal lobe, therefore, had been bathed in pus, and here and there islands of granulation had formed The dura was explored for any opening or "stalk," but none was found Wound was packed with iodoform gauze and patient put to bed Pulse 112, R 28 At ten o'clock that night T was 99.2°, P 60, R 18

October 20th—Patient complains of pains in eyes and stiffness in back of neck T 99°, P 60, R 18 Dressing changed Slept most of the day Complained of pain in head and in lower part of spine

October 21st—Complained of feeling something snap in head, after which he had a very comfortable day No pain in head T 99°, P 62, R 18 An examination of the eyes showed choked discs, the right one seeming more pronounced

From October 21st to 28th patient was very comfortable, except for a little headache on 24th—eating and sleeping well, and wanting to get up

Repeated examination during this time failed to demonstrate any localizing symptoms On questioning the patient said he could not smell like he used to but that his taste was all right

He was taken to the surgery, and under ether narcosis a horseshoe incision was made over the former incision, with convexity upwards, to try and give a better exposure of dura over temporal lobe This incision did not accomplish what was intended, so after completing the radical mastoid operation he was sent back to bed for further observation

Pulse 84 This was in the afternoon That night he became very restless and complained of pain

October 29th—Very restless Tried to get out of bed About 10 A M, nurse noticed that he could not move left arm or leg At 11 A M had convulsions, lasting fifteen minutes, following close one after the other, 2 P M was taken to surgery and an incision was made in the skin joining first vertical incision with anterior arm of horseshoe incision, which exposed all the dura denuded of bone It was then seen that the dura in the anterior portion of this area was bulging and soft to the touch

A narrow bladed knife was plunged through this bulging area, and after entering a short distance a foul smelling gas whistled out On penetrating still further, and turning the knife blade, thin pus and then thicker poured out—between one and two ounces in amount Bacteriological examination of this pus showed it to be a pure culture of *B. pyocyaneus* A grooved director was passed in to a depth of three inches, and took a direction inwards, backwards and slightly upwards A small rubber tube was inserted in the cavity with the idea of inserting a larger one each day Sent back to bed Pulse 104 At 3.30 pulse was 100 At 4.30 P M, T 101.6°, P 90 R 26 At 7.00 P M, T 101.4°, P 80, R 28 At 9.30 P M, pulse 68

October 30th—Had a fair night Intervals of sleeping quietly and intervals of restlessness Outside dressing changed T 98.4°, P 68, R 26

October 31st—On removing dressing and pulling tube out a little way the intracranial pressure pushed it out completely Great difficulty was experienced in inserting a larger tube, as the abscess cavity had collapsed T 98.7°, P 70, R 20 During the day complained of pain in head Very restless at times Moaning and trying to get up Is able to use arm and leg again

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City March 24 1920

him the old maxim, *Primum non nocere*, dominates his conduct. To him active hemorrhage is the only positive indication for interference, indeed the only justification. He says there is danger of infection from stitches. But I see no greater danger from a few aseptic stitches nicely coaptating the surfaces of a tear than from large lacerated surfaces of tissue constantly bathed with lochial discharge. It may be said that there is danger of closing the cervical canal too tightly and obstructing drainage. The same criticism applies to all gynecological plastic procedure, but that does not prevent our doing them. Rather does it teach the necessity of cultivating judgment and forethought as to the function the parts must play and measuring the constructive work accordingly.

No longer can it be said that a hurried operation must be done nor that the probable absence of proper assistance, instruments and ligatures predicates a bad result. The wise modern custom of delivering patients upon the table which is so universal now lends itself readily to the repair work advocated. And the latest innovation of preventing or anticipating a tear of the perineum by cutting it down to the sphincter, thereby necessitating all the essential preparation for an operative procedure, makes the repair of the lacerated cervix but a slight addition to the duties of the accoucheur.

And now we come to the third and last stage of my theme. What does the lacerated cervix as it presents itself from day to day signify to the gynecologist? Today after years of strenuous endeavor in repairing lacerations and restoring conformations he realizes that it is not the laceration *per se* that dominates the patient's morbidity, renders her a suffering invalid and brings her to the operating table for relief but the infection incident thereto. This infection has invaded the endocervical glands and tissues to an undeterminable degree and chronic endocervicitis has been established as a focus for constitutional absorption.

Gradually the profession has been recognizing primary infectious foci in various localities and organs of the body to which are attributed serious systematic affections, such organs as the tonsils, the teeth, the appendix, the gall bladder, etc. That the endocervical tissue of the cervix uteri may be strikingly classified among these infectious foci the cervix is frequently characterized as the "uterine tonsil." The question therefore that confronts the gynecologist today is not how to repair the original injury but how to eradicate the primary infectious focus without destroying the function of the cervix.

If the obstetrician has failed to perform the immediate operation, the next most favorable time for restoration is during the puerperium before the patient has returned to her marital relations and before infection has occurred. Here a simple trachelorrhaphy is the proper procedure.

Occasionally a patient will present herself even years after her last confinement in whom the process of healing has been accomplished by the vaginal epithelium growing in over the lacerated surfaces, occluding the mouths of the lymphatics and of the endocervical glands. Infection has not occurred. The patient, however, remains sterile because of the injured muscular structure of the cervix and probable occlusion of the os. In such a case a simple trachelorrhaphy with dilatation is indicated and has been known to restore fertility.

The great majority of cases that present themselves to the gynecologist for operation have suffered infection in varying degrees of intensity and the problem that presents itself now is not how to repair the laceration but how to cure the chronic endocervicitis. The only hope of a complete cure lies in the entire eradication of the disease by removal of the infectious tissue. This was realized years ago by Dr. Thomas Addis Emmet, the inventor of trachelorrhaphy, which he promptly abandoned and applied to these chronic endocervicitis cases the circular amputation. This became the accepted procedure and has been in vogue for many years. Careful observers, who have been doing this operation and tabulating their results, have been gradually discarding it on anatomical and physiological grounds, viz. its failure to satisfactorily relieve sterility, the large percentage of premature delivery, its attending dystosia of childbirth in fruitful cases and its incompleteness in eradicating all the infectious tissue. Gynecologic literature has been abounding in discussions on this subject for years and requires no detailed mention here.

Sturmdorf has briefly and convincingly stated the requirements necessary to the care of a chronic endocervicitis and devised and perfected an operation that in the hands of many of us is demonstrating its efficiency in eradicating the disease and giving most satisfactory results in restoring fertility and facilitating subsequent deliveries. It is known as the Sturmdorf operation, sometimes descriptively called Plastic Conical Enucleation of the Cervix. Its essentials are (1) complete enucleation of the entire endocervical mucosa with its infected glands from external to internal os, (2) preserving the entire muscular structure of the cervix, (3) accurate relining of the denuded cervical canal with a cylindrical cuff of vaginal mucous membrane.

Only two silkwormgut sutures are required. These are left long enough to reach nearly to the vulva, where they can be readily seized and put on the stretch to facilitate removal at the end of three weeks. The patient may come to your office for their removal.

The operation is applicable not only to the extreme cases of lacerated cervix complicated by endocervicitis in all its multiple complications of papillary erosion, ulceration and ectropion, but

also to nulliparous infected cervix of young married women

Through the courtesy of Dr Sturmdorf I have the opportunity of showing you upon the screen the series of instructive pictures with which he has illustrated his book.\*

### FEATURES OF GALL BLADDER SURGERY OF INTEREST TO THE OBSTETRICIAN AND GYNECOLOGIST†

By WILLIAM D. JOHNSON, M.D.,  
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ONE constantly recurring statement elicited from women having chronic infected gall-bladders is that their digestive disturbance began during a particular pregnancy and was continuous with the early nausea of that state. This early nausea instead of subsiding during the fourth month, continued to and after delivery in a modified form as gaseous distention of the upper abdomen hyperchlorhydria with or without vomiting. Dr Wm Mayo says "In 90 per cent of the female patients with gall stones, the first symptoms are related to a pregnancy." In about 75 per cent of the 500 cases of gall-bladder disease in women, I was able to trace the history back to this event. The examination of a few cases of the toxic variety of pernicious vomiting of pregnancy revealed such a striking resemblance to acute biliary duct and gall-bladder infections as to lead to the recommendation to these patients that their gall bladders should be drained. No more striking findings or results have occurred in any disease than in three cases so treated.

The first case was brought to the hospital by Dr G. A. Neal, of Alabamaville, N. Y., who deserves entire credit for the basic idea that the gall-bladder was in need of drainage and persuaded me to operate. The findings were uniform in all three cases and the record of one will do for all. Gall bladder tense, fresh adhesions around fundus, omentum adherent to gall bladder, adhesions below omentum. Bile thick, black and syrupy. The striking features at operation as shown by this record, were fresh adhesions around a distended gall-bladder which was filled with black gummy bile of about the consistence of black wax chewing gum. The liver was yellow, shrunken and mottled. All of the cases stopped vomiting within 48 hours. No special therapeutic measures were used in the after care except to replace the water in the dehydrated tissues by protocolysis and in 3 to 4 days bile drainage became free and the bile assumed a normal appearance. The patient whose operative findings have been given, stopped vomiting on the second day, did well for ten days, then became suddenly and seriously ill started to vomit, failed rapidly, was brought into the

hospital in acute acidosis with acetone-diacetic acid and albumen in the urine. Transfusion 200 cc and intravenous infusion of Fischer's solution 500 cc were given, but she died six hours after admission. There was no autopsy. The other two cases did well and were cured of their vomiting.

In studying the numerous theories of the two toxemias of pregnancy, two facts stand out as constants among the many variables. One is that the products of conception are the source of the toxin and the liver lobule is the target hit. The toxin of pernicious vomiting hits the bullseye. The toxin of eclampsia hits the outer circle. Both cause focal necrosis in their respective areas. There is then a different histological picture in the two conditions. In pernicious vomiting the necrosis occurs around the central vein, at the center of the liver lobule. In eclampsia the necrosis is around the portal vein at the periphery of the liver lobule. Flexner has shown that in eclampsia there is an agglutination of red blood cells in the branches of the portal vein at the periphery of the lobule and Smol in 1912 confirmed Flexner's findings by 71 out of 73 autopsies while the remaining two cases had thrombosis of the portal vein. The cause then in eclampsia as shown by autopsy is agglutination of red blood cells. What causes the agglutination? Transfusion has brought serum classification vividly before us. You all know that groups 2 and 3 are mutually irreconcilable. There is a possibility of father and mother occupying these groups in the cases of eclampsia. Why the products of one conception are toxic and another not is the answer to the question of causation. If I may suggest that serology will answer, that in some basic difference in the group reaction of the blood of mother and child, fixed and inherited the prevention would then logically be to advise as a preliminary to marriage that the grouping of the bloods of the contracting parties be made so that a person of group two should not marry one of group three.

Hersfield reported in the *Lancet* of October, 1919, that the work of two Swiss serologists seemed to indicate that the human race has two distinct origins and that the blood groupings of these two branches of the human family are determined by their heredity.

Investigations to prove or disprove this theory of toxemia of pregnancy which naturally suggest themselves are first. Are there parents, whose products of conception will always give this reaction? Does this occur between parents in opposite groups or in different branches of the human family? It would seem from some facts observed by the breeders of animals that similar effects are noted when animals of diverging species are crossed. In closing, I would ask your consideration of gall-bladder drainage in pernicious vomiting of pregnancy and a study of blood grouping in ec

\*Gynoplastic Technology—Sturmdorf.  
†Read at the Annual Meeting of the Medical Society of the State of New York at New York City March 23, 1920.

# PYELITIS \*

By H. DAWSON FURNISS,  
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THE consideration of pyelitis is so large a proposition that time permits dealing only with treatment. However, a few remarks will have to be made concerning the etiology and pathology, to give a proper understanding of its rational therapy.

## THE CAUSES ARE PREDISPOSING AND EXCITING

Among the predisposing are to be mentioned conditions that cause a narrowing of the ureteral lumen, either by kinking, pressure from without, obstruction from within, or constriction of the ureter by changes in its walls, or foreign bodies in the kidneys. Examples are, movable kidney, pressure by the pregnant uterus or growths, calculi, stricture and renal calculi. Urethral obstructions and cord lesions causing retention of urine also produce much the same effect in the ureter as if the lesions were of the ureter itself. Other predisposing causes outside of the urinary tract are general and local infections—as typhoid, influenza, cystitis, tonsillitis, carbuncles, root abscesses of teeth, and wounds, including those of operation, especially if connected with the intestinal tract. These infections are usually regarded first as predisposing causes, which under certain conditions as lowered vitality, exposure to cold, etc., then become exciting.

While the preponderance of opinion is in favor of the theory that renal infections are blood borne, I am convinced that there are many where the infection has ascended from the bladder. I also believe that most of the acute hematogenous infections have the lesion first in the parenchyma and later in the pelvis.

A great number of pyelitis cases heal spontaneously or under conservative treatment. Those that persist do so because of a continuance of the source of infection, or the presence of some mechanical factor producing deficient drainage.

Our first problem is to make an accurate diagnosis, determining the cause, the nature and location of the infection, and the presence or absence of any predisposing or complicating factor.

In some of the very acute cases, it is neither feasible nor advisable to make some of the examinations that are indicated in the chronic and recurring type.

Tuberculosis and stone should be, and usually can be, proved or disproved by suitable laboratory examinations and radiography.

Physical examination will determine renal mobility and the presence of masses in the pelvis that may obstruct the ureter.

In the acute infection, the patient is put to bed, fluids administered liberally by mouth and by rectum, either as Murphy Drip or colon irriga-

tions. Tap water is preferable to saline solution, as thirst is less and the kidney is relieved of the extra burden of chloride elimination. Heat is applied to the region of the infected kidney best by the electric pad.

Urotropin is of value as a diuretic and to better the accompanying cystitis. There is no antiseptic effect at the kidney level, for it does not break up into formalin and carbolic acid until it has been in the presence of acid urine for an appreciable length of time.

In the pyelitis of pregnancy posture is of great value. Sim's, with the side opposite the diseased part down, slight Trendelenburg, and the knee chest for a few minutes several times daily to relieve pressure on the ureters.

Under such palliative treatment, many, if not most of the acute cases are relieved. If betterment is not experienced within three or four days, or improvement is slow, I feel that renal lavage is indicated. Even though there may be infection in the renal parenchyma as well as in the pelvis, the establishment of good drainage adds a favorable factor towards recovery. If gently done there is little discomfort, and I feel sure convalescence is materially shortened.

The chronic cases persist as a result of some focus of infection, especially teeth and tonsils or some mechanical condition unfavorably affecting free drainage. Proper attention to these is essential. Movable kidneys, if causing ureteral kinking should be properly fixed so that free drainage is had.

Stone in the ureter or kidney should be removed unless there is some contra-indication.

My belief is that ureteral stricture is responsible for most of the continued and recurring pyelitis. The presence of stricture can be proved out by Hunner's wax bulb moulded on a catheter, the bulb hanging at the point of stricture on attempt to remove catheter after bulb has been passed beyond stricture. Personally, I prefer a pyelo-ureterography; this shows the point of stricture and the dilatation above.

The relative function of the two kidneys is determined by indigo-carmin or phenolsulphonephthalein, as it is useless to attempt to treat a kidney with destroyed function when its fellow shows ample elimination.

It is in the chronic cases that our most satisfactory results are achieved by local treatment—which is planned to relieve obstruction and to introduce proper medicaments into the pelvis. Should stricture be demonstrated, it is overcome by the gradual dilatation with graduated bougies, this should not be done suddenly and it is better to attain the maximum in two or three sittings than at one séance. The pain is less and the chances of reaction greatly lessened. If the traumatism is great the inflammatory process causes a "swelling shut" of the ureter with the pro-

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 23, 1920.

duction of an acute hydronephrosis which may last from a few hours to several days, and as the urine is already infected the patient may be quite ill.

Many of these patients have dilated ureters and pelvises as a result of the ureteral obstruction, so that in irrigating the kidney we must take time to rid it of all urine and pus by injecting and draining out sterile water or boric solution. The best solution I have found for instillation in the pelvis, is silver nitrate, in strengths from one-half to two per cent. The rapid subsidence of ureteral and pelvic dilatation after treatment with silver nitrate is evidence to my mind that the ureteral obstruction is due to mucosal swelling at one of the points of natural narrowing. This also makes me think that there are few if any congenital strictures and that all are inflammatory in their origin. When the inflammation extends deeper than the mucosa a true stricture results and it is these that must be stretched.

When the bladder is very sensitive it should be filled with salt solution or salt added to the boric acid solution to neutralize the silver as it comes into the bladder.

These irrigations are done in the acute cases every one two or three days according to the urgency of the condition. In the chronic cases, four to five day intervals answer well. Where there is definite stricture the patient should return for dilatation every three months for the first year. The intervals can be lengthened in subsequent years if there is no evidence of contraction of the stricture.

The rational treatment of pyelitis is removal of sources of infection, mechanical factors influencing drainage and topical applications to the infected part. Urinary antiseptics, flushing by ingestion of fluids and vaccines if the infection is by the colon bacillus are valuable adjuncts.

## SOCIAL PEDIATRICS \*

By HENRY L. K. SHAW, M.D.

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IN no branch of modern medicine has there been so much progress as in that of the prevention of disease. Emphasis is now being largely directed to health rather than to disease. The triumph of the medical corps in the World War both in this country and abroad over that invisible and insidious enemy—disease—was due largely to preventive measures. Every returned soldier and sailor has received practical instruction in public health and a new vision of the domain of medicine came to all medical officers who entered the Service. Sir George Newman expresses the present trend of thought when he says that the first duty of medi-

cine to day is not to cure disease but to prevent it. All our human knowledge and experience should be applied to the prevention of disease. Herein lies our greatest service to mankind. To cure is splendid and praiseworthy but to prevent disease is Godlike and magnificent. Dr. Lyon writes that some physicians fail because they take a narrow and individualistic view of their work. They get the patient so close to their eyes that they cannot see the public. They see their trade but fail to recognize their profession. In the struggle for existence and the necessity for making a livelihood the attitude of the medical profession towards social problems is apt to be narrow, selfish and individualistic. We need a broader vision and we should appreciate that the claims of the health of the public are greater than those of any individual. Gittings in an address on "Physicians and Social Service" said that as a class we have been slow to recognize the importance of many of the lessons taught by sociology and have allowed our study of disease the figure in our limelight to blind us to much of the background out of which disease emerges. The art of medicine of yesterday was too conservative in its conception of its true functions. So far as it has gone, the prevention of disease has proved to be one of the greatest achievements of the science of medicine of today.

Not one of us will dispute this statement. But what is being done to spread the gospel of public health among the physicians of this country? They must be educated or rather re-educated in modern medical social problems. A physician engrossed in private practice with its many demands and responsibilities will not have much leisure in which to take up any new line of study. The most satisfactory method lies in the medical school. The mind of the medical student is receptive and plastic while it is hard to teach new tricks to old dogs. Dr. Ira S. Wilk in an address at the meeting of this Section at Rochester in 1912 said that 'Medical Schools exist for the purpose of supplying the community with men who are trained in caring for the public health. If the schools fail to teach their students the methods of preservation of life, they fall short of their ideal purpose. The position of the physician is altering in that the community no longer regards him merely as an individual capable of curing individual diseases, but as an especially gifted man capable of guiding the public in and to health. The physician should be looked upon as the leader in public health activities, but this work in a community can never be elevated to a higher degree than the medical profession raises it. A stream is no purer than its source and we must elevate and educate the source.'

The object of this paper is a plea for systematic training in social pediatrics in our medical

colleges The prospective medical student should be directed in his pre-medical course to study sociology and economics and obtain a comprehensive grasp of the organization of modern society This subject should appeal very strongly to those of us who specialize in diseases of children By virtue of our training and experience we should take an active part in all social welfare agencies The child forms the basis of most of our Public Health work The foundation for many of the diseases and most of the defects of later life is laid in early childhood The study of the child in health, the preservation of health and the prevention of disease are as essential in the practice of our profession as that of the study of the diagnosis, pathology and treatment of disease We have not realized the great opportunities for service and the fulfillment of our highest professional ideals in directing and assisting social welfare and educational work By our indifference we have allowed the non-medical social worker to grasp a great opportunity and gather all the honor and glory The physician and not the social worker is the logical arbiter of all problems relating to health He is the one who should advise and direct and perhaps supervise the activities of health and socio-medical activities He can uphold the honor and dignity of his profession on a loftier level than by simply being a purveyor of pills Social medicine opens up great opportunities and new territories for service to members of the medical profession

Dr. Richard Bolt, General Director of the American Child Hygiene Association, proposes as an ideal scheme for the education of medical students in the essentials of infant and child welfare work

1 A clear understanding of the structure of modern society, with special emphasis upon the changes which are taking place in medicine from an individualistic to a community service

2 Familiarity with the general methods of all social agencies working for the welfare of the child

3 A knowledge of the causes of infant mortality, and the most approved methods of prevention

4 A good working knowledge of obstetrics especially in its relation to the nursing and social needs of the community

5 Experience in maternity (prenatal) service

6 A course of pediatrics, laying stress upon the fundamentals in infant hygiene and infant feeding

7 Thorough instruction in modern pediatric methods, with actual experience in a babies' dispensary and in infant welfare center for prophylactic work

I wish to submit a syllabus of a course of instruction in social pediatrics which is being carried out at the Albany Medical College It is not perfect nor complete by any means but it

will serve to illustrate the possibilities of such a course and point out some of the functions of social pediatrics

### *The Child in Health*

Anatomy and Physiology of infancy and childhood

Difference from adults

Growth and development

Periodic physical examination

### *Vital Statistics and Demography*

Birth registration Stillbirths

Illegitimacy

Methods of improving

Mortality statistics

Rates at different ages and seasons

Effect of season and climate

### *Mortality during Childhood*

Definition and significance

Distribution in the U S and other countries

General causes prenatal—natal—postnatal

Preventable Non-preventable

Causes by age periods

Effect of poverty and ignorance

Influence of domestic and social conditions

Age and nationality of mother

Effects of alcohol and venereal disease

Food—nursing—milk—proprietary foods—diet

Preventive methods

The mother (maternal work—number of children—age of mother)

The child

The surroundings

Social conditions—housing, sanitation, etc

### *Prenatal and Maternity Care*

Childbirth statistics—causes of death

Baby—foetal and congenital

Mother—Instruction of expectant mothers

Systematic examinations

The mother in industry

Regulation of midwives

Prenatal clinics and maternity centers

Care of mother during pregnancy

Care of mother—at confinement—hospital

Prevention of blindness

The prenatal nurse

### *The Child in Industry*

State and national legislation

Approved standards of child labor

Employment certificates

Educational and physical requirements

Supervision and periodic examinations

Widows' and mothers' pensions

### *Tuberculosis in Children*

Physical examinations

Protection of exposed children

Home supervision

Preventoria, sanatoria, day camps, etc

Follow up work

### *Child Welfare Propaganda*

Extension and educational work  
Exhibits Posters, moving pictures, news  
paper publicity, pamphlets, etc  
Lectures and demonstrations  
Administration of Child Welfare Centers  
National Child Welfare Organizations  
American Child Hygiene Association  
Child Health Organization  
Child Labor Committee  
American Public Health Association  
Parent Teachers Association  
State and Local Child Welfare Organizations

### *Health Agencies*

#### *Federal*

Children's Bureau  
U S Public Health Service  
Department of Education

#### *State*

State Department of Health  
Division of Child Hygiene  
Vital Statistics  
Public Health Nursing  
State Board of Charities  
State Department of Education

#### *Municipal*

Health Department  
Board of Education  
Child Welfare Stations

#### *Private*

Day Nurseries  
Maternity Centers  
Playground Associations etc

### **SUGAR \***

By FRANK VAN DER BOGERT, M D,  
SCHENECTADY N Y

**I**N view of the very rapid increase in the consumption of sugar during the past fifty years it seems rather surprising that so little space in medical literature has been devoted to its value and limitations as a food in late childhood. Text-books on Pediatrics deal with it simply as a food for infants and writers on diet as a rule refer only to its nutritive value and ease of assimilation. Recently through the lay press has come a warning as to its dangers and the suggestion that the shortage of the past few years may have been of real value to the race from the standpoint of public health. Since children are perhaps the largest consumers this danger seems worthy of the consideration of those of us who are interested in their development.

The manufacture of sugar dates back many centuries, its price, however, was prohibitive even as late as the commencement of the 19th century, before which time it was very little used by the poor, being a luxury almost beyond their reach. Prior to the 18th century it was looked upon as a drug and in 1700 the total consumption in Great Britain, now the largest consumer, was only about 10,000 tons. One hundred years later this had risen to 150,000 tons and in 1885 one million tons were eaten. The total world production in 1914 was twenty-one million tons.

The history of sugar production and the consumption prior to 1700 is of more interest than importance. Sugar itself is not mentioned by Herodotus, which means that it was probably not known in Egypt or Persia 400 or 500 years B C, still, something is said which makes one believe that it was produced, for he says of the Gyzantes "among whom honey is made in large quantity by bees but in much greater quantities still it is said to be made by men." It was known as a rarity with the Greeks and Romans and the supply came from India. According to Morey the only sweets of the Athenians were in the form of fruits and wines. Crusaders brought it to European countries, it having first come to Western Asia through the Arabs who got it in East India and China. Marco Polo refers to its manufacture about 1280 A D and it was sold in London in 1482 at \$2.75 a pound. In 1810 Napoleon I offered a prize of one million francs for the best method of obtaining sugar from the beet and the literature of the time contains a humorous caricature published in 1811 ridiculing the Emperor and his son, the Little King of Rome. Napoleon is represented as sitting in the nursery squeezing a beet into a cup of coffee and near him is the King of Rome putting another to his mouth, his nurse telling the youngster to "Suck, dear suck, your father says it's sugar." Napoleon's attitude gave a great impetus to the industry.

Before sugar was a common commercial article honey was generally used to sweeten foods. Honey has been used as a food from earliest times and is generally conceded to be wholesome but its comparative scarcity is evidenced by the fact that it was sent as one of propitiatory offerings by Jacob to his unrecognized son, the chief ruler of Egypt, and that a land flowing with milk and honey was apparently worth striving for.

Dr W R Whitney, to whom I am indebted for many of the above references, suggests that it looks very much as though the race is being partly killed off in an attempt to produce a type of immunity against sugar and that we would hardly expect this immunity to be first class in a couple of centuries.

It is safe to assume that the present great popularity of sugar is as much due to its pleasant flavor and comparatively low price as to its food value. To quote from *The Farmers' Bulletin*

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City March 23 1920



issued upon this subject by the United States Department of Agriculture, "It may almost be said that people eat as much sugar as they can get, the consumption in different countries being, in general, proportional to their wealth." In normal times Great Britain consumes 96 pounds per person annually and this country disposes of one-fifth of the total output of the world. Candy factories all over the United States are turning out tons upon tons of candies in response to an ever growing demand for sweets, and figures showing the growth of the candy industries have become attractive bait for the prospective investor. Last October Mr. Zabriskei, President of the Sugar Equalization Board, told the Senate Sub-Committee, that during the first nine months of 1919 the American people consumed 300,000 more tons of sugar than normal, and suggested prohibition as the principal cause, since those accustomed to alcoholic drinks have turned to soft drinks, candies and confections. The February *American Review of Reviews* puts the 1919 increase over 1918 at perhaps one half million tons, which was the normal annual increase of the whole world. According to the *New York Times* of February last, sweet eating has grown so rapidly in this country as a substitute for indulgence in alcohol that much of the wreckage of the liquor business has been salvaged for the production of candy, ice cream and syrup. The Bartholomew Brewing Company at Rochester has been turned into a big wholesale candy factory, the Harvard Brewing Company of Massachusetts into a chocolate factory, and the Jacob Rupert and other breweries are making a malt syrup which forms a basis for candy and confections. These facts suggest habit rather than necessity and make us rather wonder at the regret expressed by Lorand, in his "Health Through Rational Diet," that ice-cream soda had not been introduced into his country. Lorand is inclined to consider the craving for sweets for which children and young girls have a marked predilection as a kind of instinct which should not be denied and will have a beneficial effect, and seems to forget that it tends to establish the most pernicious of all dietetic habits, between meals feeding. The substitution of tobacco by sweets is exceedingly common. Leonard Guthrie, writing of the evils of tobacco in his "Functional Nervous Disorders of Childhood," says that we all agree that smoking is bad for little boys. They spend then money on cigarettes instead of on sweets which practice, however may be more damaging to the sweet stuff trade than it is to them.

With most of us a dinner however otherwise complete is not likely to satisfy unless followed by a dessert. The observation of Gainer upon monkeys that they preter acid fruits when in the wild state but when in captivity, soon become enthusiastic about sweets also points to

sweet eating as a habit. There can be no question as to the important place which carbohydrates must always hold in the diet, since with fats they furnish a very large proportion of the energy required, nor can we disregard the value of sugar itself when taken in moderation and with regularity, and, under certain unusual conditions, in large amounts. There seems, however, to be no proof that sugar is absolutely essential after the period of infancy, when its presence in considerable amount in the milk of the nursing mother points to its necessity in the early months before the digestive processes have become able to convert starches, but, after this digestive ability is established, there is every reason to believe that the effort required in the conversion of starches is of benefit to the development and maintenance of the digestive processes, and that added sugar tends to impair these functions.

The arguments advanced in favor of the consumption of sugar in large amounts are its high caloric value, its prompt assimilation, and the craving for sweets especially manifest in childhood. The first two apply only to infants and to those adults employed in active out-of-door work, or under conditions of great physical strain. Lumbermen and farmers who work hard in the open air are cited as examples of those who are benefited by the consumption of large quantities of sweets. Dietary studies carried on in the lumber camps of Maine showed that sugar of all sorts supplied an average of 10 per cent. of the total energy of the diet. Candy supplied to armies in the field is believed to increase their efficiency. Certain rowing clubs in Holland have reported very beneficial results with the use of large amounts of sugar in training. Pfleger, who has devoted much time to the study of carbohydrates, says that undoubtedly sugar in the blood is heavily drawn upon during violent exercise, hence the longing for it in a form that can be rapidly assimilated.

Its use by mountain climbers is well known. The Swiss guide considers lump sugar and highly sweetened chocolates an indispensable part of his outfit. The value of sugar in cold climates, particularly where foods containing starch are not available, must be conceded, and in the outfit of Polar expeditions sugar is now given a most important place, the loss of life in a recent expedition having been directly attributed to the fact that two members of the party failed to find the sugar left for them. Great value is set upon sweets in India, and it has been said that the employer who fails to furnish the native laborer with the large amount of sugar he desires, must expect to lose his workman. The same might be said, however, of the employer of the Canadian guide should he refuse to furnish tobacco.

The craving for sweets, to which so much importance is attached by many writers, can, in

most instances, hardly be considered of more value than the craving for alcohol. Tissue hunger has long been distinguished from normal appetite and may depend upon an abnormal state of the digestive tract which inhibits assimilation. Children who show symptoms of inherited weakness of the thyroid gland have a very decided craving for large quantities of sweets. Craving can be relied upon as an index of body needs only when man reverts to his natural state.

Any etiological connection between the increase of sweet eating in this country and the large number of physical defects and functional disorders, a realization of which has come to us through a more thorough examination of school children and young men, can be but problematical. We know only that these defects exist at a time when general errors in diet are exceedingly common and the natural inference is that some causal relationship exists. As suggested by Leonard Williams, 'Inasmuch as food is agreeable it is safe to assume that such dietetic errors as are habitually committed arise from excess rather than deficiency of its consumption'. Sugar as the most pleasant must be considered the most dangerous.

Dietetic errors certainly have their effect in the production of gastro-intestinal disorders so prevalent in children, and many of the functional nervous disorders of childhood can be directly traced to the toxemia of intestinal origin. The most frequent dietetic errors in childhood are carbohydrate excesses, and sweets are in great part the determining factor in carbohydrate excess.

Of present day physical defects of childhood stand out most prominently dental caries, adenoids and hypertrophied tonsils. Infection plays its part in the production of these defects, to be sure, but infection can only occur where resistance is lowered. There can be little question as to the influence of present day sweet eating upon dental decay. Dietetic histories of cases of marked dental caries in young children must be considered conclusive, showing as they do almost invariably, the most lavish ingestion of sweets. Westlake in his little book on "The Teeth to the Twelfth Year" says that the diet must be of natural pure foods, those not denatured by manufacturing processes. The teeth probably suffer in three ways from sugar excess: they have been deprived of advantages gained by the milling process of obtaining necessary sugar from starch. Sugar forms a most satisfactory medium for the growth of acid producing bacteria, and the gastro-intestinal derangement subsequent to excessive sweet eating interferes with the assimilation of bone-forming materials from the food.

It is very probable that we were intended to chew our starchy food sufficiently to obtain the satisfaction of its pleasant taste by conversion to sugar in the mouth. Brackett, in his "Care of the Teeth," speaks of the deplorable condition of the teeth in a community where a considerable part of the diet was made up of a combination of poor bread and molasses, lacking in nutritional elements and readily fermentable.

I have personally felt for many years that adenoids and hypertrophied tonsils are at least indirectly due to carbohydrate excess and that sugar plays a most important role in their development. My case histories almost universally point to such a causal relationship, and I have come to believe that recurrences after operation can be prevented in practically all instances by elimination or limitation of sweets in the diet. Very recently Dr. Harry Campbell read before the Section of Diseases of Children of the Royal Society of London a paper in which he assumes the cause of adenoids to be a toxemia of intestinal origin brought about by a flooding of the bowel by starch which has undergone little, if any, salivary digestion, and suggests as a factor, the enormous increase in sugar consumption of late years. Adenoids are said to be more common among the British than any other people. Sir William Osler thought that there was more mouth breathing in England than in any other country. Great Britain is the largest consumer of sugar.

To effectively increase resistance against these and other forms of infection we must alter some of our dietetic habits, many of the most pernicious of which can be justly attributed to the palatability of sweets. Sugar water has been and still is, in the minds of the unenlightened, the ideal preservative. Sweet eating practically always means between meals eating, and foods made tempting by the addition of sugar encourage overeating.

The nutrition of children in Orphan Asylums of New York State, where meals are regular and supervised, where between meals feeding is eliminated and sugar ingestion controlled, is known to be better than outside these institutions. The Children's Home of Schenectady, with forty-five inmates, has just completed a year during which there has been no real illness requiring the services of a doctor. Few private families can show a better record with one tenth the number of children.

Without wishing to deny any of the pleasures of the table, I would plead simply for a more moderate use of a food which has possibilities for harm.

## "COLIC" IN THE NURSING INFANT.\*

By T WOOD CLARKE, M D

UTICA, N Y

IT may seem to the members of this section that the subject of colic in infancy is too familiar to be worthy of your time and consideration. You are all familiar with the anxious call from the worried mother, usually late in the evening or at night, demanding immediate attendance upon the baby, screaming with colic. In such cases you have found a small speck of humanity with features contorted with agony, abdomen hard, and legs drawn up. Sometimes there has been vomiting, or belching, and expulsion of gas. The mother has given castor oil and a soda mint tablet and the grandmother catnip tea. One or two soap-suds enemata have been administered, and the paregoric bottle is within easy reach. In spite of all this the baby proceeds to make nights hideous. This is the familiar picture of the colicky baby as we meet it in our practice. The question I wish to discuss today is our procedure when confronted with this situation.

I believe that for the intelligent handling of such cases the first essential is to disregard the maternal diagnosis. In no other conditions of illness will we accept the layman's diagnosis unquestioned. In the case of "colic" we are all too prone to do so. We must study our case as carefully as we would any more obscure disease, and must be prepared if necessary to contradict the mother and even the grandmother in their assured knowledge that the baby has colic.

With the infant that is being fed the various patent foods, made up of malt sugar and starch, condensed milk, malted milk, or cow's milk with too much fat or sugar, we may get fermentation, increased peristalsis, and a true intestinal colic. With the nursing baby, however, the proposition is different. Unless the mother is seriously indisposed, physically or neurotically, the milk is probably correctly proportioned. If, then, the baby is fed with decent regularity, there is little reason for the food not to digest properly. It is not rational that a baby fed regularly at the breast should have sufficient indigestion to cause abdominal pain. Why then does it scream, draw up its legs, vomit, belch, and pass gas?

A number of years ago I became skeptical of the diagnosis of colic in the nursing infant and since that time have devoted rather more than the ordinary time allotted to a house call in such cases, searching for some more rational explanation of the symptom complex commonly called colic. My conclusion has been that true intestinal colic due to indigestion in the nursing infant is rare indeed. In the great majority of such cases some other explanation, quite dissociated from the intestines, can be found.

A very frequent cause of the so-called "colic" in the nursing infant is hunger. The trouble with the mother's milk is more frequently quantitative than qualitative.

To understand how hunger may be mistaken for colic one must recognize certain facts. In the first place the hungry baby will scream and a screaming baby will swallow air. This air, mixed with the milk, will overdistend the stomach and cause pain, belching up of the swallowed air, or even vomiting. The underfed baby, does not have enough residue in the bowels to stimulate normal evacuation, the fecal matter hardens and scabulous masses form. These then cause excess peristalsis and rectal stretching with the resulting strain and supposed "colic." If the underfeeding is carried too far, we may get a starvation diarrhoea with green, mucous stools, tenesmus and even more or less degree of collapse.

If one sees the symptoms of crying, vomiting, and abdominal pain, with either constipation or diarrhoea, the natural tendency is to cut down the feeding. In this type of case the condition is thus aggravated. Many a poor infant is half starved to cure a colic when all it needs is a square meal. One good feeding to the capacity of the stomach will often produce a miracle cure in a case of protracted "colic."

An essential, in cases of colic in the nursing infant in which hunger is suspected, is to find how much the mother is giving her child. This is done by the simple procedure of weighing the infant before and after each nursing for forty-eight hours and keeping a careful record. Other things being kept equal, the increase of the after feeding over the before feeding weight represents the amount of milk put into the baby's stomach.

In cases in which the colic usually occurs at night, it will be found as a rule that whereas the mother has given her child a full allowance in the morning, the exhaustion of the day's duties has diminished the supply during the day, and the baby, that was contented after the morning feedings, by evening will be screaming with hunger. By the study of such a record, and for this purpose I have a special chart printed, which I leave with the mother, an accurate knowledge of the quantity of food is obtained, and supplemental feedings of cow's milk can be given following the nursings which fall below the average. When this is done, the "colic" disappears.

A second class of cases usually called colic by the family, and far too often by the physician, is that of otitis media in the infant. Not until one has made a routine of cleaning out the wax from every crying baby's ears and examining the ear drum, has one any conception of the tremendous frequency of otitis media in infancy. In a pediat-

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 23, 1920.

ric practice an infant otoscope is a far more necessary instrument even than a stethoscope. You can listen to a chest with your ear but you cannot examine the tympanic membrane in an infant without the proper instruments. Furthermore ear lesions are probably ten times as frequent as lung lesions in the infant.

Otitis media in infants gives many varied symptoms none of which to the uninitiated point to earache. Sometimes an otitis manifests itself simply by a slight tendency to drowsiness. The child that suddenly loses interest in its surroundings, takes its feedings in a half-hearted way and immediately goes to sleep, should always be suspected of an otitis. In other cases a slight fever, restlessness, peevishness, sleeplessness, and turning of the head from side to side, such symptoms as we often associate with an early meningitis, will be found to be traceable to an infected and bulging drum. A third symptom complex of otitis strongly resembles that of pneumonia. High fever, rapid jerky respiration, quick pulse, sometimes even a definite expiratory grunt, may all be caused by an acute inflammation of the middle ear. Very frequently in consultation, where the physician is convinced that his child has a pneumonia, but is unable to localize the lesion and has fallen back on the diagnosis of broncho-pneumonia, a glance at the tympanum will give the diagnosis and a paracentesis will produce almost an immediate cessation of the symptoms.

The most common group of symptoms produced by otitis media in the young infant are those commonly called colic, namely, vomiting, crying, often with a sharp scream and drawing up the legs, for the infant will do this when in pain from any cause, with the crying there is swallowing of air with the resulting belching and borborygmi. In such cases colic has been diagnosed, usually the feeding has been reduced, cathartics have been given, and to the original pain of the earache have been added the pangs of hunger and the gripes of castor oil. A routine examination of the ear drums in every baby that is drowsy, restless, crying, vomiting, and has any fever will clear up more puzzling diagnoses than any other one procedure, and will give the infant sometimes immediate relief from its suffering. If the drum is infected or bulging moderately I recommend the use of hot drops made up as follows: carbolic acid 24 grains, alcohol 1 dram, glycerine 1 ounce. These may be used from every 15 minutes to every 2 hours according to the amount of discomfort of the patient. If the drum bulges dangerously or the bulging increases in spite of the drops, immediate wide incision of

the ear drum is indicated, followed by douching with sterile boric acid.

The routine examination of the ear in every ill child will not only give a great deal of immediate relief to the patient, but will save the physician the chagrin of having his "colic" clear up with a running ear, and, which is far more important, make mastoid disease a rare curiosity.

The third, and perhaps the most common cause of the symptoms commonly attributed to colic is old-fashioned spunk aggravated by bad training and bad habits. The baby that is picked up every time it cries, that is waked up at night to be shown off to visitors, that is rocked to sleep or jounced in the hopes of shaking a smile out of it soon gets the idea in its little head that if it wants anything in this world all it has to do is to yell loud enough and it will get it. If its particular desire is not recognized and gratified, it will scream, hold its breath draw up its legs and kick them out again in its fury. Hence the diagnosis of colic, and the resultant peppermint, castor oil and enemata. After a couple of hours of such vigorous treatment, the baby becomes thoroughly tired out and disgusted and cries to be left alone and allowed to go to sleep. The madder he gets at his treatment, the louder he yells, and the more confirmed becomes the diagnosis of colic, and the more strenuous the application of all the old family remedies. How often one sees the wee mite whom the mother claims has been having colic for hours, for which she has done everything she can think of without relief with the look of a hunted animal in the eyes that are saying to you as plainly as expression can talk "For God's sake why can't they leave me alone?" The poor exhausted baby on whom every member of the family has tried some colic cure worn out in body and mind is begging them to put it in its crib in a dark room and let it sleep in peace. Five minutes of a dark room, silence and neglect, will often convert the most violent colic into a peaceful sleep.

I do not want to be interpreted as saying that there is no such thing as true colic in infancy. The irregularly fed infant, the infant that is having too much fat or sugar, the infant on patent foods do have true colic. Occasionally appendicitis and peritonitis or obstruction give you a real entity but in those cases the baby is and looks ill. The point I wish to make is that with the properly breast-fed infant, and the decently fed bottle baby as well the symptom complex diagnosed by the family and often treated by the physician as colic, if carefully studied will be found in the great majority of cases to be in no way associated with intestinal spasms but to be due to hunger, earache or spunk.

## New York State Journal of Medicine.

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street, New York, N Y

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## BROOKLYN WELCOME

'Tis when Mother Earth will have cast aside her sombre hued robe of Winter and will have folded itself in the perfumed raiment of May that we invite you to Brooklyn

It is in May, the glorious month of the year, when it will be neither too cold nor too warm to enjoy the change of a new environment after the toll of the long Winter, that we welcome you to participate in the wonderful scientific programme, as well as the social features so magnanimously provided

For the first time in the history of our society we meet in Brooklyn Is it any wonder, then, that our local profession awaits your arrival with pardonable pride and expectation

Dr William Francis Campbell and his Committee on Arrangements are filled with divine discontent that we may be satisfied with nothing save the best—the best thing to do and the best way of doing it

We are holding before us as the high goal of endeavor and our dream, that which spells success, not alone the success of the scientific programme, which is already assured, but the success of reflecting our efforts to the good of the public, in whose behalf our efforts, in the final analysis, accrue

Brooklyn differs from most large communities in that it possesses a peculiar neighborly responsiveness We are recognized as the city of churches and homes, we cherish the appellation Civic pride permeates our community to an unusual degree We are assured of the full co-operation of our borough officials and civic bodies

The stage is set, the drama will be most complete, since the participants are from the stars of the profession; a profusion of intellectual thought awaits you

While other professions and associations may have their ambitions to achieve in their annual conventions, the Medical Society of the State of New York stands most unique in its objects Succor is its purpose, relief is its motive, and the lessening of human suffering is its goal

I deem it a very great privilege that I should be permitted to extend to you a hearty welcome, we bid you command us in any way that will add to your comfort and convenience

J RICHARD KEVIN,  
President, Medical Society,  
State of New York

## THE PROGRAM FOR THE STATE SOCIETY MEETING IN BROOKLYN

The Committee on Scientific Work has been able to arrange an unusually interesting program for the annual meeting of the State Society which will be held in the Twenty-third Regiment Armory in Brooklyn, May 3d, 4th and 5th

All the meetings of the Society and of the Sections will be in the same building. Those who attended the meetings in Buffalo a few years ago will remember how much it added to the interest and the attendance when this plan was followed on that occasion

This year the attendance should be very large, and should prove especially valuable scientifically. The President is to be congratulated upon having secured George C. Vincent, LL.D., to deliver the annual oration. His subject is to be "Medical Education." Dr. Vincent is an orator of distinction and his position as the head of the Rockefeller Foundation enables him to speak on this subject with authority.

The Section on Medicine will have a joint meeting with the Section on Public Health, Hygiene and Sanitation and with the Section on Surgery. In the former Dr. George Walker of Baltimore will read a paper on the "Abolition of Venereal Disease." Dr. Walker's large experience in handling the venereal problem among our forces in France should make his contribution especially valuable. The latter will be devoted to the subject of "The Therapy of Arthritis" in which Dr. David Murray Cowie of Ann Arbor, Michigan, will discuss the subject of "Foreign Proteins." This section will also have two symposia: one on diseases of the intestines, in which Sir William Goldie and Dr. Fred Whitney Rolph of Toronto, Canada, will take part, and the other on "Hypertension" in which Dr. Henry A. Christian of Boston and Dr. Alfred Stengel of Philadelphia, will be participants.

In the Section on Surgery, Dr. W. Wayne Babcock, of Philadelphia, will read a paper on the "Physiologic Factors Underlying Operations upon the Stomach and Duodenum." And in addition to the joint meeting with the Section on Medicine will hold a meeting in conjunction with the Section on Neurology and Psychiatry where the subject of the surgery of the brain and nerves will be discussed. At this meeting Dr. Charles F. Frazier of Philadelphia, and Dr. A. W. Adson, of the Mayo Clinic, will contribute papers.

In the Section on Obstetrics and Gynecology there will be an interesting and well rounded program, with Dr. George W. Crile, of Cleveland, Dr. Arthur M. Morse of New Haven, Dr. Floyd E. Keene, of Philadelphia, Dr. Emmet M. Farr, of Minneapolis, Dr. Donald Guthrie Syre and Dr. E. C. Rosenou, of the Mayo Clinic, taking part.

The Sections on Eye, Ear, Nose and Throat and Pediatrics have arranged programs combining clinical and scientific sessions. It is believed that the clinical demonstrations will prove especially interesting.

In the Eye Section Dr. George S. Derby, of Boston, will read a paper on "The Economic Value of Social Service in the Care of the Eyes of Employees."

In the Section on Neurology and Psychiatry in addition to papers to be read by guests from other States in the joint meeting with the Section on Surgery already mentioned Dr. Morton Prince, of Boston, will present a paper on "An Experimental Study of Hallucinations."

The Section on Public Health, Hygiene and Sanitation have also arranged an unusually interesting program.

In mentioning the names of the distinguished guests who will take part in this meeting the fact should not be overlooked that the contributions from members of the Society from all parts of the State make up a very large portion of the program, and add materially to the interest as a whole.

It is hoped that the members of the Society will come to the meeting prepared to take part in the discussion of the various papers. It is often true that the discussion is more valuable than the paper itself, and the committee is hopeful that this may be true this year.

SAMUEL LLOYD

*Chairman Committee on Scientific Work*

## REPORT OF COMMITTEE OF ARRANGEMENTS

The report of your Committee is largely reflected in the scientific exhibitional and entertainment programs already presented for your participation.

The Committee however would emphasize two features of the program which are innovations, and are presented solely for their educational value to the community in which the convention is held.

In conformity with the traditions of our profession the aim of our annual convocations should be altruistic, not egoistic.

We are convinced that the function of our annual conventions should not be circumscribed solely by the personal activities of the physicians who attend. The annual convention affords a unique opportunity to awaken and interest the local community in matters of public health, sanitation and hygiene.

Our convention should be an annual event, not merely for the profession, but sought and welcomed by progressive communities for the educational advantages which it confers and the stimulus for higher civic ideals which it bequeaths to its host.

To crystallize these ideas, your Committee has inaugurated two important features

First It has planned to make convention week contemporaneous with "health week" for the Borough of Brooklyn "Health week" will be inaugurated by fifty "health talks" on Sunday, May 1st, in churches selected to represent community centers

Second The usual scientific exhibit has been widened in scope, and will be in the fullest sense a health exhibit While it retains all of the features which make a personal appeal to the physician, it has extended its activities to include every department of health and hygiene Thus our exhibit will stimulate the interest of the public and profession in a way that will be mutually helpful

Other features of the program need no comment as they conform to established precedent

The innovations are placed on trial Success can be accredited only if the new paths retain the high levels, and lead our State Society into larger fields of useful endeavor

WILLIAM FRANCIS CAMPBELL,  
*Chairman, Committee on Arrangements*

### THE LEGISLATURE

The third month of the current session of the Legislature is at an end and that body will probably adjourn about the time these pages reach the reader A number of important measures concerning public health and the medical profession are now under consideration and the profession as a whole does not seem to be doing its full duty in the interests of the public or itself

The Chairman of the Committee on Legislation has sent appeals to County Societies by mail and telegram the individual members of the Society have been admonished by an open letter in the JOURNAL, and still, for example, the opposition to the immediate licensure of existing chiropractors in the State is, thus far, a weak and desultory affair, supporting the opinion of several Assemblymen who say, either our doctors are satisfied with the ability of chiropractors to care for the sick, or they are indifferent to public welfare

The people of the State of New York would seem to have the right to expect protection from their physicians against inimical medical laws as they expect protection against pestilence, and the neglect of this duty may influence not only the standing of the profession but also the weight of the opinion of its members Your officers and

your committees are alive to the existing dangers, they voice your opinion backed by the weight of your numbers, yet they are in a large measure helpless because they lack your individual support If every member of this Society would personally see his Senator and his Assemblyman in the interest of what in his opinion is best for the public and then inform your officers of the result, it would be possible to estimate at once the probable effect of your effort in safeguarding public health As it is, the apparent lack of interest of the individual physician is misinterpreted by the Legislature as indifference, or acquiescence in the proposed legislation If undesirable laws are threatened or enacted, there are complaints about inefficiency of officers and committees, lack of organization, need for special guilds and what not, whereas the blame should attach to every member of the profession who has not used his personal influence Recent conferences with members of the Legislature seem to indicate that the organizations loudest in propaganda about proposed laws, are spending their energy chiefly in telling what they do and propose to do, rather than in any constructive work in Albany

It will serve no purpose to enumerate here the numerous proposed laws now under consideration and it is to be hoped that the good ones will be enacted and the bad ones defeated

There is sufficient evidence to justify the conclusion, that efforts to legislate in matters of public health have become a feature of the legislative program and that the present organization of the State Society planned to deal efficiently and constructively in this connection is insufficient for the purpose Attention has repeatedly been called to this by legislative committees and others It is also apparent that the present organization for this purpose does not command the full confidence or the co-operation of the individual members of the profession These are matters which should have the earnest attention of the House of Delegates and should engage the best constructive talent at our service

This arm of the State Society service should not only consider proposed legislation and appear before the Legislature as representing a profession united in purpose, but it should also be able to sufficiently interest and stimulate the individual members of the Society to lend that personal aid so necessary for success While several plans have been proposed in the past to bring this about, they have not met with universal approval and the subject remains one still open for proper solution

## HOUSE OF DELEGATES

In November of last year on these pages attention was directed to the care and judgment desirable in the selection of delegates to the State Society. This task is generally faithfully and conscientiously carried out, yet there is rarely a session at which one or more delegates from a county do not come at all, and of those who do come to the meeting, one or more yield to the lure of a golf course or to entertainment by some local host, at the expense of the efficiency of the delegation. The members of the County Society should realize the importance of this matter. Their representatives aid in expressing the opinion of the profession of the State and Nation. These positions merit the selection of members who are qualified by training and experience to deal seriously, quickly and correctly with the problems which are brought to their attention.

At the meeting of the House of Delegates of the State Society to be held a few weeks hence a number of serious questions of policy in several of the fields of activity should be decided by our ablest members for the benefit of the profession as a whole. There is room for new activities on the part of the State Society and improvement in old ones. There is a demand for greater harmony and co-operation, for additional benefits to be derived from more intimate contact and better understanding. The post-war period of reconstruction presents economic problems with which every man must reckon and words of wisdom from selected representatives in conference may solve problems for younger and less experienced members of the profession. Let our delegates go to their task in full recognition of their responsibilities, let them meet the issues squarely and let the solutions of the problems be for the benefit of the greatest number. These men should earn their prerogatives and deserve the gratitude of their constituency.

## Correspondence

*To the Editor of the New York State Journal of Medicine*

The universal feeling of dissatisfaction with the present State narcotic law—the Whitney Law—has found expression in two bills now pending in the Legislature, the Smith-Lord bill and the Fearon-Smith bill.

Either of these bills if enacted will repeal the Whitney Law and abolish the Department of Narcotic Drug Control.

The medical profession of the entire State has been thoroughly aroused by the recent vexatious, burdensome and ridiculous regula-

tions promulgated by this department for the purpose of controlling those physicians who prescribe for drug addicts, but with the actual result of placing intolerable burdens upon the rank and file of the profession in the daily practice of medicine. It is confidently expected that the Legislature is prepared to meet the views of the medical profession in this matter and will in all probability pass one or both of these bills.

It seems desirable in the interest of the reader to review the important features of the respective bills.

The Smith-Lord bill merely repeals the Whitney Law and abolishes the department. The Fearon-Smith bill also does this, but contains additional features, which are briefly as follows:

First—It permits the State to co-operate with the federal authorities in the enforcement of the Harrison Act.

Second—It provides means for the voluntary or involuntary commitment of drug addicts to hospitals or institutions for treatment.

Third—It prohibits the prescribing or dispensing of narcotics to drug addicts for self-administration.

In comparing the practical results of these bills the profession should consider whether the entire problem is adequately dealt with by the mere repeal of the present objectionable Whitney Law or whether this is not a narrow and selfish position for physicians to take, one which ignores the responsibility for its ultimate solution. It was the latter view which led to the incorporation in the Fearon-Smith bill of the features summarized above.

The co-operation of the local with the federal authorities is essential if the illicit traffic in narcotic drugs is to be effectively controlled, as the present force of federal agents is too small to cope with the problem unaided, despite the recent increase in registration fees for physicians under the Harrison Act. The Fearon-Smith bill permits this co-operation without the State taxing the physicians.

The one valuable feature of the Whitney Law and at the same time one which in no way affected physicians in the practice of medicine, proved to be the legal provisions for the commitment of addicts for treatment. Thousands of addicts in New York City alone availed themselves of this provision and were successfully treated in public institutions.

The Fearon-Smith bill retains this provision of the Whitney Law. While the wealthy addict can always go to a private institution for



treatment, experience has shown that it is useless for institutions to be maintained for the treatment of addicts at public expense unless by legal commitment their stay for the period of treatment is insured and control of the patient rendered possible

It is hardly necessary to discuss the third feature of the Fearon-Smith bill—prohibiting the ambulatory treatment of drug addicts—since the State Medical Society at the last annual meeting, by unanimous vote of the House of Delegates, adopted a resolution to the effect that this so-called treatment should be forbidden by law

The American Medical Association at the last annual meeting of its House of Delegates also adopted a resolution emphatically condemning the ambulatory treatment

This feature of the bill is substantially identical with similar provisions enacted in Massachusetts in 1917 and in Rhode Island in 1918. The Pennsylvania State Department of Health in September 1920, promulgated regulations to the same effect

Although the Harrison Act does not specifically prohibit the ambulatory treatment, physicians practising it are liable to prosecution, because the government maintains that such treatment is not compatible with professional good faith. By a specific prohibition of this treatment the State can support the federal government in its attempt to prevent professional misuse of narcotic drugs, while leaving the legitimate use of them in ordinary professional practice absolutely unhampered

It is obvious from the above review that the Fearon-Smith bill is constructed on broad, unselfish principles, the interests of the public and the welfare of the addict are fully provided for without prejudice to the freedom of the physician in the legitimate practice of medicine. The Smith-Lord bill, failing to meet these provisions, its passage alone will open the door to multitudinous regulations and rules on the part of local health officials attempting to meet their local problems, which may lead to a more puzzling and vexatious state of affairs than exists at present

Attention must be called to the fact that the failure of the State of New York to co-operate with the federal government in its attempts to deal with this problem, would give greater reason and encouragement for efforts to obtain more drastic federal legislation. Bills which, if enacted, might prove to be a serious handicap to the physician in his practice, have already been proposed in Congress based on the alleged inefficiency of the Harrison Act

WILLIAM P HEALY

## Women's Medical Society

The Women's Medical Society of New York State will hold its Fifteenth Annual Meeting at the Kings County Medical Building, 1313 Bedford Avenue, Brooklyn, on Monday, May 2, 1921

In addition to the regular business and the reports of standing committees the following program will be given

Morning Session, 10 o'clock

President's Address, Dr. Lois L. Gannett

"Medical Facts Culled From Fifteen Years Practice,"

Dr. Louise Hurrell

Afternoon Session, 2 o'clock

Symposium on Health

"High Grade Mental Defective," Dr. Alice Bennett

"Health Education of the Individual," "Y. W. C. A. and the Women's Foundation of Health," Dr. Josephine H. Kenyon

"Public Health Educational Work," Dr. Carro Croff

Discussion of the above papers by Drs. Harriet F. Coffin, Helene J. Kuhlman, and Edith R. Spaulding

Monday evening a banquet will be served at Hotel Bossert, Montague Street, Brooklyn, at 7 o'clock. A luncheon will be arranged at some convenient place for those who care to attend. Details of the luncheon arrangements will be given at the morning session

Committee of Arrangements, Eliza M. Mosher, 103 Montague Street, Brooklyn, Mary Potter, 305 Washington Avenue, Brooklyn, and M. E. Rose, 130 Post Avenue, New York

## Deaths

CARLEZA, JOHN MARTINEZ, Brooklyn, Long Island College Hospital, 1906, Member State Society. Died March 30, 1921

CLOSE, GEORGE HASTINGS, New York City, University and Bellevue Medical College, 1899, Fellow American Medical Association, Member State Society, New York Academy Medicine. Died March 11, 1921

COTT, GEORGE T., Buffalo, Buffalo Medical College, 1884, Fellow American College of Surgeons, American Medical Association and American Academy of Ophthalmology and Oto-Laryngology, Member State Society, Buffalo Academy of Medicine, Oto-Laryngologist General and City Hospitals, Buffalo. Died March 22, 1921

GARTEN FRANK, New York City, Albany Medical College, 1908, Member State Society. Died April 4, 1921

GLAUBIT, ROBERT WILLIAM, Rockville Centre, New York University, 1888, Member State Society. Died March 27, 1921

HARVEY, CYRUS C., Dundee, Buffalo Medical College, 1877, Member State Society. Died February 9, 1921

LEVFRIDGE, SILAS P., New York City, Bellevue Medical College, 1880, Member State Society, Alumni Bellevue Hospital. Died March 16, 1921

MANN, CHARLES MITLAND, Petersburg, Cornell Medical College, 1907, Member State Society. Died March 7, 1921

PECHMANN, HENRY W. A., Hulburton, Bellevue Medical College, 1894, Fellow American Medical Association, Member State Society. Died March 5, 1921

SEARS, FRANK WALKER, Binghamton, College of Physicians and Surgeons of New York, 1895, Fellow American Medical Association, Member State Society, Consulting Surgeon Binghamton City Hospital. Died March 8, 1921

STOKES, CHARLES FRANCIS, New York City, College of Physicians and Surgeons of New York, 1884, Surgeon General, U. S. Navy Ret., Fellow American College Surgeons, American Medical Association and American Surgical Society, Member State Society, Academy of Medicine, Alumni Bellevue and Gouverneur Hospitals. Died April 6, 1921

## Meeting of the Council

A special meeting of the Council of the Medical Society of the State of New York was held at the State Society rooms 17 West 43rd Street on Thursday afternoon March 24th 1921 Dr J Richard Kevin President, Dr Edward Livingston Hunt Secretary.

In the absence of the President, Dr E Eliot Harris Speaker of the House of Delegates was appointed temporary chairman.

The meeting was called to order at 2 45 P M and on roll call the following answered to their names Drs Grant C Madill E Eliot Harris Dwight H Murray W Meddough Dunning, William H Purdy, Edward Livingston Hunt Harlow Brooks Joseph B Hulett Frederick C Holden Luther Emerick T Avey Rogers William D Alsever Leon M Kysor Owen E Jones Harry R Trick Samuel Lloyd Joshua M Van Cott Frederic E Sondern and William Francis Campbell.

A quorum being present Dr Harris announced the meeting open for business.

The following telegram was received from Dr Rooney.

Dr E L Hunt Secretary  
Medical Society of the State of New York.

Regret important meeting Public Health Committees regarding Chiropractic prevents attending Council Meeting.

J F ROONEY

Moved and seconded that the reading of the minutes of the first meeting be dispensed with and that they be approved as printed in the JOURNAL. Carried.

The President having arrived Dr Harris retired and Dr Kevin took the chair.

The Secretary read the following communication  
Dr Edward Livingston Hunt Secretary  
Medical Society of the State of New York.

A bill has been prepared and will shortly be introduced into the legislature which amends the medical practice act in such a way as to permit the introduction of practical tests into the state licensing examination and to permit the State Board of Medical Examiners to endorse certificates of the National Board of Medical Examiners. It also amends the section relating to the practice of osteopathy by adding after the word osteopathy the phrase "or any other method of adjusting the vertebrae of the human spine." This of course includes the chiropractors but inasmuch as they would be required to conform to the same educational standard as the osteopaths there are none of them who would be able to avail themselves of the privilege. The bill further provides that the Attorney General of the State upon proper information duly verified shall prosecute violators of the medical practice act in the same way as now provided in the laws relating to dentists. It seems to us that if we can secure the passage of this act it will be a long step forward and we hope to have your active co-operation in the matter.

Very truly yours

WILLIAM D CUTTER M.D. Secretary  
Board of Medical Examiners

Moved and seconded that the bill be referred to the Committee on Legislation in co-operation with the legal Counsel. Carried.

Dr Harris Chairman of the Committee to Draw up Rules and Regulations in regard to conducting the Business of the Council presented the following report.

### Executive Committee of the Council

WHEREAS The Council consists of twenty-two members located in various parts of the State and hold regular meetings in May and December of each year and

WHEREAS Because of the infrequency of the meetings of the Council and the inability to hold meetings more often due to the fact that the members of the Council reside in various parts of the State and for the more

efficient administration of the affairs of the Society it is deemed proper to organize and create an Executive Committee of the Council.

Therefore, Be It Resolved That an Executive Committee of the Council be and the same hereby is created and that the purposes of the Executive Committee shall be to carry on during the interim between the regular meetings of the Council the affairs and business of the Society and shall be the Finance Committee of the Council. The Executive Committee shall consist of seven (7) members of the Council two (2) of whom shall be the President and the Secretary of the Society the other five (5) members shall be elected by a majority vote of the Council at the regular meeting of the Council held at the close of the annual session of the Society. The President shall nominate the candidates for election to the Executive Committee other candidates may be nominated by any member of the Council. The term of office shall be co-extensive with the term of the Council which elected them members of the Executive Committee. The Executive Committee shall organize for business immediately after the meeting of the Council and shall elect a chairman, a vice-chairman and a secretary.

Meetings The Executive Committee shall hold a regular monthly meeting on a day agreed upon during the first week of each month at the office of the Society in the Borough of Manhattan City of New York and shall meet at such other times and places on the call of the chairman or any two (2) members of the Executive Committee. Four (4) members shall constitute a quorum. The following shall be the order of business at the meetings of the Executive Committee:

- 1 Calling the meeting to order
- 2 Roll call
- 3 Reading of minutes
- 4 Reports and communications
- 5 Unfinished business
- 6 New business

Finances It shall have supervision of the finances of the Society and no funds of the Society shall be used or appropriated for any purpose except by its authority, or the authority of the Council, nor shall any indebtedness be incurred by officers, members of committees or members of the Society until the same have been approved by the Executive Committee or by the Council.

Publications It shall control and supervise all of the publications of the Society and their distribution and shall make and execute all contracts incident thereto and shall appoint an editor and such assistant editors as may be necessary and fix their compensation for the preparation and publication of the JOURNAL and other publications of the Society. The appointment of the editor shall be subject to the approval of the Council.

Audit It shall have power to audit and cause an audit to be made annually by a certified public accountant of the accounts of the Treasurer, the Secretary and all agents of the Society receiving or disbursing any of the funds of the Society, and present a statement of the same to the Council for presentation by the Council in its annual report to the House of Delegates.

Legal Counsel It shall act as adviser to the legal Counsel in his undertaking of protecting the members of the Society against suits for alleged malpractice or in any other legal matters pertaining to the Society.

County Societies It shall approve all constitutions and by-laws of county societies and all amendments, additions or alterations thereon before reporting them to the Council for action.

Referendum The chairman of the Executive Committee can order or any two (2) members of the Committee can require the chairman to order a referendum vote by the members of the Council on any question that may come before the Executive Committee. Members of the Council may vote thereon by mail or tele

gram The poll on the question shall be closed at the expiration of five (5) days after the mailing of the question to the members of the Council and if the members of the Council voting shall comprise a majority of all the members of the Council, a majority of such votes shall determine the question and be binding on the Executive Committee

*Vacancies* In case of any vacancy in the Executive Committee through death, resignation, disqualification or other cause, the President shall appoint a successor to fill such vacancy until the next meeting of the Council

*Rules and Regulations* It may adopt rules and regulations for its own government and for the administration of the affairs of the Society not repugnant to the Constitution and By-Laws of the Society or to the rules and regulations which may be adopted by the House of Delegates or the orders of the Council

E ELIOT HARRIS, *Chairman*  
SAMUEL LLOYD,  
FREDERIC E SONDERN,  
EDWARD LIVINGSTON HUNT,  
HENRY LYLE WINTER

Moved and seconded that the report be adopted  
Carried

Moved and seconded that the Council shall immediately proceed to the election of the members of the Executive Committee Carried unanimously

The Executive Committee as nominated by the President, was seconded and carried unanimously

Mr Whiteside, Counsel for the Society, presented a report covering the work of his office since the last meeting of the Council, including recommendations for increasing the value of the Counsel's office to the members of the Society

Moved that the report and recommendations of the Council be referred to the Executive Committee of the Council

Amended by adding that the findings of the Executive Committee be referred to the entire Council before action is taken

Motion as amended, seconded and carried

Moved and seconded, that it is the sense of the Council that the Health Centre Bill be opposed Carried

Dr Brooks, Treasurer, reported that the balance in the bank after all April bills had been paid would be about \$3883.26

Dr Sondern, Chairman of the Committee to Consider the Question of the appointment of an Executive Secretary, read the following report

#### *Report of the Committee to Consider the Question of The Appointment of an Executive Secretary*

The subject of the appointment of an executive secretary as requested by the House of Delegates had the serious consideration of your Council

A Committee immediately appointed to consider the question in detail presented the following report

"The Committee on the Question of the Executive Secretary is pleased to report that the last House of Delegates adopted the recommendation of President Madill advising the employment of an Executive Secretary Your Committee after considering the whole question, including the financial obligations involved, recommended

'(a) That an Executive Secretary be employed on contract to be drawn by our Counsel and signed by the President and the Executive Secretary for the period of six months at a salary not over \$3,000, and an expense account of not over \$2,000 for the period above named

'(b) The duties of the Executive Secretary shall be defined by a Committee of Five composed of the President Secretary and three other members of the

Council, to be named by the President But the detail of the work of the Executive Secretary shall be subject to the control, supervision and approval of the Secretary of the Society elected by the House of Delegates

'(c) The sub-committee of the Council in defining the duties of the Executive Secretary shall not interfere with the present plan of the general office work

Respectfully submitted,

J RICHARD KEVIN,  
E ELIOT HARRIS,  
EDWARD LIVINGSTON HUNT

The Council on the whole in favor of the appointment recommended, and anxious to execute the instructions of the House of Delegates, was however, impressed by several serious obstacles which became evident during the consideration of the subject

*First* The apparent lack of appreciation of the broader needs of the State Society by the candidates who appeared before the Council, and the scarcity of applicants for the position

*Second* The inability to define concretely the duties of the Executive Secretary, without further study and possibly instructions from the House of Delegates For example, just what was meant by "better organization," "greater protection," and "greater welfare activity" In this discussion it became evident that faults in the functioning of the Council and in the Legal Department were in a measure responsible for the defects this proposed new appointment was intended to remedy Your President has remedied these as will be apparent in the reports of the Council and the legal Counsel

*Third* The financial situation of the Society On December 7th, the date of the last Council meeting, 3,000 members had not paid their 1920 Special Assessment of \$2.00 each, and on the same day the bank balance for current expenses was only \$4,100 It is evident that your Officers could not assume the responsibility of an expenditure of even \$5,000 for six months The thought that money can be found for a good cause does not put it into the bank to draw against on the first of the month when salary is due

These reasons considered in detail resulted in a vote which postponed the desired appointment

In order that the House of Delegates might not misunderstand the motives for this action of the Council, a Special Committee was appointed to explain in greater detail as above, which would not be apparent in the minutes of the meeting

This Special Committee would emphasize that in their opinion the really broad scope of the work in one of the most important State Societies of the Union demands as a guarantee for success, a man of unusual vision and keen efficiency who would not only command higher compensation than originally contemplated, but who cannot be secured on a six months' tryout basis For this purpose it is absolutely necessary for the Society to have in hand and not only in promises the funds to pay him and his expenses

FREDERIC E SONDERN,  
EDWARD LIVINGSTON HUNT,  
HENRY LYLE WINTER

Moved and seconded, that this report be received and incorporated in the reports to be presented to the House of Delegates Carried

Dr Campbell, Chairman of the Committee on Arrangements, presented a report (see page 141)

Moved and seconded that it be accepted Carried

Dr Lloyd Chairman of the Committee on Scientific Work, presented a report

Moved and seconded, that it be accepted Carried

The new By-Laws of the Medical Society of the County of Queens were submitted for approval by the Council

Moved and seconded that they be referred to the Executive Committee. Carried

The following resolutions were presented in regard to the activities of the committees between meetings of the House of Delegates

WHEREAS, The House of Delegates is the legislative body of the Society and is charged with the general management, superintendence and control of the Society and its affairs and shall have such general powers as may be necessarily incident thereto and

WHEREAS, The House of Delegates may adopt rules and regulations for its own government and for the administration of the affairs of the Society and

WHEREAS, It may delegate to the Council such powers and authority as may be necessary to the efficient administration of the affairs of the Society while the House of Delegates is not in session and

WHEREAS, The standing and special committee of the Society are subject to the direction of the House of Delegates, and

WHEREAS, The House of Delegates is in session only once during the year and for the efficient administration of the affairs of the Society, it is deemed proper that the House of Delegates shall delegate to the Council the direction of the standing and special committees of the Society while the House of Delegates is not in session

Therefore *Be It Resolved* That all standing and special committees of the Society shall be under the direction and subject to the orders of the Council while the House of Delegates shall not be in session

*Be It Further Resolved* That the Council be charged with carrying out the Constitution By Laws and the rules, regulations and orders of the House of Delegates

Moved and seconded that the resolutions be adopted. Carried

Moved and seconded that the resolutions be presented to the House of Delegates by the Secretary. Carried

Moved and seconded that all rules, regulations and resolutions heretofore passed by the Council inconsistent with the resolution establishing the Executive Committee are hereby rescinded. Carried

There being no further business the meeting adjourned at 6 P. M.

EDWARD LIVINGSTON HUNT Secretary

## County Societies

### THE MEDICAL SOCIETY OF THE COUNTY OF ERIE

REGULAR MEETING BUFFALO N. Y.

MONDAY, FEBRUARY 21 1921

The meeting was called to order at 8:30 P. M. by the President Dr. Bennett at the Buffalo Medical College.

The Secretary read the minutes of the annual meeting in December and the minutes of the Council meetings of January 7th, February 4th and 21st all of which were approved as read.

On recommendation of Dr. Roe, Chairman Committee on Membership, duly seconded and carried, Drs. Charles H. W. Auel, Walter R. Ashe, Henry Adsit, Charles H. Andrews, James C. Haley, Abraham Horwitz, August Lascola, Carroll J. Roberts and Christina M. Greene were declared reinstated to membership, and Drs. Howard Osgood, Edward J. Lyons, William Howard Hay and Ethel B. Herrmann elected to membership.

Dr. Raymond L. Cooley was received by invitation from the St. Lawrence County Medical Society.

Dr. Leonard E. Curtice presented the following resolution for the Legislation Committee:

*Resolved* That the Medical Society of the County of Erie, at a regular meeting February 21st 1921, petitions the legislature to repeal the State Narcotic Law for the following reasons:

1st That it is an unnecessary reduplication of the Federal law known as the Harrison Law.

2nd That it accomplishes nothing that the Federal Bureau does not accomplish.

3rd That the repeal of the said law would relieve the taxpayers of the State of an unnecessary burden and

4th That it would relieve the duly licensed physician and pharmacist of unnecessary duplicate certification.

*Be It Resolved*, That these resolutions be spread upon the minutes, a copy of the same be sent to the various county societies, and our representatives in both the Senate and Assembly and to the Governor of the State.

On motion duly seconded and carried the report was received and the recommendations adopted.

The Secretary presented a communication from Martin Cavana, M.D., Chairman, Legislative Committee, Madison County Medical Society, in reference to methods of acquainting legislatures with the wishes of the organized medical profession of the State in regard to legislation on motion of Dr. Sherman, duly seconded and carried the communication was received and ordered referred to the Committee on Legislation.

The Secretary read a communication from the Erie County Pharmaceutical Association relative to the New York State Narcotic Law. On motion of Dr. Sherman, duly seconded and carried, the communication was referred to the Committee on Legislation.

President Bennett introduced Mr. Chauncey J. Hamlin, who explained and illustrated with stereopticon pictures the proposed enactment to create the Allegany State Park for Western New York. He described the wild character of the territory, among other pictures he showed one of the tombstone and grave of Peter Crouse, who died at the age of 86, a white boy captured by the Indians.

On motion of Dr. Jack, seconded by Dr. Hopkins, the Medical Society of the County of Erie recommended to the Legislature of the State of New York its endorsement of the measure and specifically that the Secretary send communications to Senator Ames and Assemblyman Ginniss as well as Senators and Assemblymen of Erie County recording endorsement. Carried.

The Scientific Program consisted of a symposium on Cancer, especially arranged by Harvey R. Gaylord, M.D., Director State Institute for the Study of Malignant Diseases.

The papers were illustrated by the presentation of cases and by the stereopticon. Dr. Gaylord emphasized the fact that the Institute was really an institution for research and not for treatment. Dr. Simpson's plea for the early recognition of cancer based upon the statistics of the Institute was concise, emphatic and clear, placing responsibility upon the physician to bring cases promptly to treatment before incurable harm occurred.

Dr. Marsh's paper on Mouse Breeding Experiments was a scholarly and a conservative exposition of the results of studying the more common considered causes of cancer such as heredity, injury and diet.

Dr. William Stenstrom gave a scientific demonstration of the methods pursued in the use of radiant light especially in therapy.

Dr. Bernard F. Schreiner's paper on Clinical Results with many illustrative clinical cases elicited much questioning and discussion.

the treatment of prolapse, by carefully detailing the indications governing the choice of operation and adding several new methods of attack thus bringing the subject up to date

The clear style, the evident care displayed in the arrangement, and the profusion of illustrations combine to make it a very satisfactory work for the specialist in diseases of women  
H KOSTER.

**FUNCTIONAL NERVE DISEASE** An Epitome of War Experience for the Practitioner Edited by H CRICHTON MILLER, M A, M D Henry Frowde, Hodder & Stoughton, London, Eng, and Oxford University Press, New York 1920 Price, \$4 50

This is one of the best books of its kind which has appeared in recent years It is a book which will be read and not merely referred to Its style is delightful It is not only an epitome of war experiences in functional nerve cases, but it also gives a concise but comprehensive description of the various theories of the neuroses The authors describe the analytical viewpoint fairly, and go into the hysterical mechanism quite exhaustively This book can be highly recommended to the general practitioner, who wishes a brief, clear exposition of some of the problems of psychopathology  
J F W MEAGHER.

**MATERNITAS** A BOOK CONCERNING THE CARE OF THE PROSPECTIVE MOTHER AND HER CHILD By CHARLES E PADDOCK, M D Price, \$1 75 Cloyd J Head & Co, Chicago, Ill 1920

This work on a subject that has been in great demand during the last decade, seems to have gotten down to the least common multiple No two obstetricians and no two pediatricians can agree on what or how much to tell the laity for instruction, but this book seems to give a reasonable quality as well as a minimum of quantity It would pay specialists in each line, as well as general practitioners to look it over, as a guide to recommend to their patients

**SHORT TALKS ON PERSONAL AND COMMUNITY HEALTH** By LOUIS LEHRFELD, A M, M D, with Introduction by WILMER KRUSEN, M D, LL D Price, \$2 00 F A Davis Co, Philadelphia, Pa 1920

Based upon the premise that the Health Officer cannot enforce principles of sanitation and hygiene unless he can first make his community understand the importance of the various problems with which it is confronted, Dr Lehrfeld presents several hundred short sermons on various subjects of personal and public hygiene The subjects covered range from "Mumps" to "The High Cost of Preventable Diseases," from "Spring Tonics" to "The Dog-Days," from "Health Resolutions for the New Year" to "Prevention of Industrial Accidents," from "Handling of Food" to "The Extermination of Bedbugs," from "Safety Hints to Bathers" to "First Aid to the Injured"

While the subjects are many and of common interest to the public, their treatment is rather commonplace, lacks the high spirit of health propaganda of the more advanced state and municipal Health Departments Many of the talks savor more of a Sunday sermon than of a Brisbane editorial

G M P

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The author emphasizes the importance, in troubles of a reflex nature, of carefully determining the exact strength and the correct axis of the cylinder to be prescribed for the correction of "the very low degrees of astigmatism" The chapter entitled "The Relation of Functional Eye Diseases to General Medicine," will be read with interest, not only by oculists, but also by internists and neurologists The last ten pages of the book describe the many methods of detecting the simulation of blindness, either partial or complete This section will be of great service to military surgeons and also to those who examine for accident insurance companies  
J W I

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL. 21, No. 5

NEW YORK, N. Y.

MAY, 1921

## SOME UNUSUAL EXPERIENCES IN THE DIAGNOSIS AND TREATMENT OF INTERMITTENT HYDRO- NEPHROSIS\*

By GEORGE EMERSON BREWER, M.D.,  
NEW YORK CITY

FIFTY years ago, before the days of renal surgery, the occurrence of severe paroxysmal pain radiating from the flank to the groin, or external genitals, was generally interpreted as being due to the passage of a calculus from the kidney pelvis downward through the ureter to the bladder. Occasionally this was demonstrated by the passage of a small concretion. The frequent repetition of these attacks, often without recovery of the stone, in certain individuals, later led to the surgical exploration of the kidney which in many instances revealed the presence of one or more stones, often too large to enter the ureter, while in other cases no lesion was found to account for the symptoms.

In 1878, Martin, of Berlin, called attention to the fact that an abnormal mobility of the kidney not infrequently gave rise to the same painful syndrome, due, as he believed, to a twisting of the renal pedicle and temporary occlusion of the ureter, and in 1881 Hahn advised treatment of this condition by means of an operation for fixation of the organ. About this time Henry Morris reported a number of cases of obstruction due to arrested calculi in various portions of the ureter, as well as to other lesions not of calculous origin, but which gave rise to temporary ureteral blocking. For all of these conditions he employed the term *intermittent hydronephrosis* as indicating the one condition common to all, namely, a temporary interruption to the normal flow of the urine from the kidney to the bladder, producing a nephrectasia or dilatation of the renal pelvis.

The advance of surgery, the introduction of the cystoscope and ureteral catheter, and the perfection of the modern Roentgenographic technic, have greatly increased our knowledge of ureteral lesions, have rendered their diagnosis more accurate, and have resulted in a steady progress in their operative treatment with each succeeding decade.

In March, 1911, the writer presented a paper

before the New York Surgical Society, entitled "Some Observations upon the Surgery of the Ureter, with a Brief Report of Thirty-one Cases." In the ten years which have elapsed since that time, similar cases have been encountered with rather increasing frequency. As in the great majority of instances, operations on the ureter are undertaken for the removal of an arrested or impacted calculus, and as the methods employed in the diagnosis and treatment of these conditions are well understood and generally accepted by the profession, I will limit myself this evening to the report of a series of cases presenting unusual difficulties in diagnosis or treatment, or in which the ureteral lesion was not of calculous origin.

### *First Group Cases presenting unusual difficulties in diagnosis and treatment*

From this group I have selected two cases, one occurring recently where we had all possible help from modern exact methods of diagnosis, the second an earlier experience, in which we were handicapped by a lack of these methods and aids to diagnosis.

Mr. S, aged 40 years, without previous history of urinary trouble, was seized while at dinner with a violent pain in the right flank radiating downward over the crest of the ilium to the glans penis. The pain was so severe, that he had to be helped to his room, and obtained relief only by a large hypodermic injection of morphine. There was frequent micturition. The urine contained blood cells. A minute calcareous fragment was passed. The following day he was cystoscoped. The ureteral catheter met an obstruction 4 cm from the bladder orifice. An X-ray plate revealed an indistinct but definite shadow about the size of a dime in the kidney region, also five small shadows in the pelvis, only one of which seemed to lie in the course of the ureter near the bladder. On rectal examination, a minute hard nodule was felt near the vesical implantation of the right ureter. At this time I saw him in consultation with his attending physician, Dr. Nagel, verified the findings, and as the shadow over the ureter seemed exceedingly small, indicating a calculus which should easily pass, I advised a second cystoscopy, with dilatation of the lower segment of the ureter by graduated bougies, and if possible the injection above the obstructed area of a small quantity

\* Read before the Roosevelt Hospital Alumni, February 21, 1921.

of albolene. It was also proposed to take two additional plates, one with the ureteral bougie in place, to determine the exact relation of the small shadow to the tube, the other after its removal. In neither of these plates did the original ureteral shadow appear, the other four (phleboliths) occupied their former relative positions well to the outer side of the ureter. It was therefore decided at a consultation, that although the clinical symptoms remained unchanged, as there was definite roentgenographic evidence that the small fragment in the lower ureter had been passed, operation for the removal of the kidney calculus should be undertaken. Accordingly on the following day under ether anæsthesia, the right kidney was exposed by a lumbar incision, and the kidney drawn upward into the wound. The pelvis was found to be exceedingly tense, and when incised, a quantity of purulent urine escaped. The cavity was thoroughly explored by the finger, but no stone found. A bougie was then passed downward through the ureter, which was arrested at the bladder wall. The incision in the renal pelvis was united, the kidney replaced, and the wound sutured with adequate drainage. The patient was next placed in the dorsal position, and the lower ureter exposed by an extraperitoneal dissection. This was separated from its attachments and followed down to the bladder wall. No sign of a foreign body within its lumen could be detected. The adjacent bladder wall was then carefully palpated but without result. Dr. Wyeth, who had performed the cystoscopy, and who had also palpated the small concretion through the rectum, inserted a gloved finger into the rectum, found the nodule and pressed it upward until my finger from above met his and appreciated the small hard body. On investigation, however, this was found not to be in the ureter or bladder wall. We were about to abandon the search, when a last painstaking palpation of the bladder wall, aided by Dr. Wyeth's upward pressure, resulted in the finding of a second calcareous nodule, evidently within the intravesical segment of the ureter. Attempts to nudge this upward into an easily exposed portion of the ureter were at first baffling, but after repeated efforts it was finally forced upward and removed through a small longitudinal incision of the tube. This and the abdominal wall were then sutured in the usual manner, and a large cigarette drain left in the retroperitoneal space. The operative time was over two hours, and the patient exhibited signs of moderate shock. These however, were met with appropriate measures and after two days of acute suffering, he entered upon a normal period of convalescence. Primary union occurred in both wounds and he was out of bed on the twenty-first day and has since remained free from symptoms.

My second case as will be seen, submitted to four operations before obtaining relief.

M. C., female, aged 43, single, was admitted to the Roosevelt Hospital in the autumn of 1903. Fourteen years before she experienced an attack of pain in the lower left abdomen, which lasted six days. Nine years ago there was another similar attack which lasted twelve hours. This time the pain radiated to the groin and thigh, and there was a sense of numbness in the external genitals of the same side. Since that time she has had about twelve severe attacks of a similar nature, with more or less constant discomfort in the flank and groin. In one of these attacks there was moderate hematuria. Three years ago she underwent an operation on the left ovary, which was followed by a period of relief for several months. The pain, however, recurred, and during the last two years has been at times severe and necessitated the giving up of her work. When admitted to the hospital, she was found to have an extensive ventral hernia at the site of the previous operation. There was moderate tenderness over the left kidney, at a point two inches below and to the left of the umbilicus in the neighborhood of the external abdominal ring, and, by vaginal examination, in the left half of the roof of the pelvis. These points of tenderness varied somewhat on different occasions, and at times none but the kidney tenderness could be elicited. The urine was cloudy, containing a faint trace of albumin and considerable pus. While in the hospital she had an acute attack of colic, the pain radiating to the groin and thigh, with tenderness over the kidney, but without hematuria or evidence of hydronephrosis. An X-ray examination of the kidney was negative. The attack of colic was so characteristic, however, that an exploratory operation was advised.

Under ether anæsthesia a generous oblique incision was made in the flank, exposing the kidney and upper part of the ureter. The kidney was incised, the finger passed into its pelvis, and every calyx explored, with negative result. A flexible metallic ureteral sound was next introduced into the ureter and passed to the wall of the bladder. It could not be pushed beyond this point. There was no feeling of a foreign body touching the sound, its failure to pass into the bladder being apparently due to stenosis of the ureteral opening rather than to the obstruction of a calculus. To verify this, however, the incision was extended to the inguinal region, and the ureter followed downward with the finger to its junction with the bladder. As no stone could be felt, and as an injection of methylene blue into the pelvis of the kidney immediately appeared in the bladder urine, further search was abandoned, the wound was closed by layer suture, a small cigarette drain being left extending to the kidney incision.

The wound healed kindly, and several weeks later the patient submitted to an operation for the cure of the ventral hernia. While she was still in bed from the latter operation she complained of more pain in the groin, and another X-ray picture was taken which showed the presence of a calculus in the lower end of the ureter. The patient refused further operative treatment and was discharged from the hospital. Three or four months later she experienced a severe attack of acute left-sided pain, accompanied by chills, fever and sweats. During this attack the region of the left kidney was exquisitely tender, and the kidney was apparently enlarged from distention of its pelvis. The attack subsided in about one week. Two or three weeks later she was readmitted to the hospital for her fourth operation.

Under ether anesthesia the urethra was dilated until it admitted the forefinger with this the region of the left urethral opening was palpated and a small oval calculus distinctly felt beneath the mucous membrane. The bladder was then distended with ten ounces of sterile salt solution opened above the pubes and its walls retracted by three large abdominal retractors. A bent probe passed through the left ureteral orifice touched the stone. The orifice was slit up for a distance of a quarter of an inch the stone readily seized with the forceps and withdrawn. After thoroughly irrigating the bladder it was closed tightly by three layers of chromicized catgut suture the other structures approximated and the cutaneous wound partly closed with silk. A small gauze drain was left in extending to the cavity of Retzius. The patient was catheterized every two hours for the first three or four days. The wound healed kindly and without a drop of leakage. She has since been well.

**Second Group** We will next consider a group of cases of movable kidney presenting typical Dietel's crises not relieved by fixation and requiring nephrectomy.

**Case 1**—A young, unmarried woman who had repeated attacks of febrile renal neuralgia with vomiting and tenderness in the right flank. Seen during one of these attacks there was present an enlarged and tender kidney. Next day, after diuresis the tumor had disappeared. On operation a freely movable kidney was found with enlarged and relaxed pelvis. Normal ureteral implantation sinus easily palpated, no stone. Kidney replaced and anchored by chronic catgut sutures. During convalescence she experienced another attack more severe than any previous seizure. Would consent to no operation which would not guarantee a cure. The kidney was therefore removed, with prompt healing and permanent cure.

**Case 2**—History almost identical with the former. Case seen with Dr. A. S. Clark of New

Brunswick. At operation renal pelvis was found to be relaxed and enlarged, nothing else observed. Kidney drawn upward to straighten ureter and securely anchored in place. Recovery from operation but recurrence of attacks, which, several months later became unbearable. Nephrectomy finally performed, with complete relief of pain and great improvement in general health.

In a third case of this series the cause of the movable kidney seemed to be the weight of a fairly large adenoma of the lower pole. This was removed, and the kidney fixed in a position to straighten the ureter. The colic recurred, and was only permanently relieved by a secondary nephrectomy.

In all of these cases the renal pelvis was found to be enlarged flaccid thickened and wrinkled. A condition which in my experience favors a recurrence of symptoms even after fixation of the kidney. The only reasonable explanation of this seems to the writer to be, that the thickened and dilated pelvis with lowered muscular tone allows the accumulation of a considerable amount of urine before the muscle is stimulated to contract and force it outward through the ureter. Thus bulging of the pelvis may press upon the ureter, or cause an angulation at its point of implantation, as clearly shown in the following case recently operated upon in a neighboring city.

In November last I was asked to go to a suburban hospital to operate upon a case of severe upper abdominal pain, with distention of the gall bladder. On questioning the patient I learned that she had suffered from attacks of acute upper right abdominal pain for twenty odd years at times with definite radiation downward to the groin. The last few attacks however, seemed to be somewhat different in character, with fixed pain and tenderness along the costal border. In the present attack, which was the severest she had experienced, there was present a large tender oval tumor in the right hypochondriac region. Although the attending physician recognized the earlier attacks as being of renal origin he felt convinced that the present one was due to distention of the gall-bladder, which it must be admitted the tumor suggested. It was finally decided to have a cystoscopy and ureteral catheterization with pycnography. This revealed normal functional activity of the left kidney, greatly impaired function from the right an acute angulation of the upper third of the ureter, and the impossibility of forcing the opaque solution into the pelvis. These findings led to an exploration of the kidney which was found to be lying in an almost transverse position the pelvis greatly dilated and distended with fluid the ureter acutely angulated and by its pressure



on the distended pelvis, producing an hour-glass cyst, much larger in volume than the parenchyma. Nephrectomy resulted in complete relief of symptoms. An examination of the specimen showed an enormous thickening of the pelvis and upper part of the ureter, with extreme pressure atrophy of the parenchyma. It may be added that during the operation the peritoneal cavity was opened and the gall-bladder found to be small, blue in color, and in every respect normal.

A fifth case of this series was saved from nephrectomy by a plastic operation on the pelvis.

Female, aged 25 years. For two years has experienced attacks of severe right-sided pain, with swelling in the flank, often accompanied by nausea and vomiting. No fever, no hematuria, no frequency in urination. X-rays negative. At operation kidney pelvis was found moderately distended with the ureter implanted at its upper extremity and acutely kinked. A large diamond-shaped section of the posterior wall of the pelvis was removed and the wound closed with a fine catgut continuous suture, reinforced by a layer of the fibrous capsule of the kidney, which was stripped from the organ and sutured over the wound in the pelvis. She made a rapid and satisfactory convalescence. No leakage. Primary union of wound.

*Third Group* Cases of ureteral obstruction from vascular bands to lower pole of kidney.

In a report on vascular and ureteral anomalies based upon the observation and dissection on one hundred and fifty-one subjects in the dissecting room of the P & S, and read before the American Association of G U Surgeons on May 5, 1897, I called attention to the fact that in nine of the subjects, aberrant arterial trunks were found passing from the aorta to the lower pole of the kidney crossing either behind or in front of the upper part of the ureter. Mobility of the kidney even slight in extent may, in cases of this kind give rise to a kinking or pressure upon the ureter at the point of contact with the aberrant vessel.

Case 1—An unmarried female, aged 29 years. Suffered for twelve years from recurrent attacks of severe left-sided renal colic, with swelling of the flank. Duration of the attacks from a few hours to four or five days. Patient greatly emaciated by prolonged suffering. Renal tumor distinctly felt, which was as large as an egg-plant and exquisitely tender. No fever, moderate hematuria on one or two occasions. On operation kidney found displaced downward. Renal pelvis greatly distended. Dense vascular band extending from lower pole of the kidney to aorta (an aberrant renal artery). This band caused a constriction of the dilated pelvis forming an hour-glass tumor with distortion of the ureteral implantation and obstruction of the tube.

The band was divided between two ligatures, and the fluid contents of the pelvis evacuated by moderate compression. The kidney was pushed up into its normal position, which served to straighten the ureter, and the organ firmly anchored in place. The wound healed kindly, but the patient was never free from pain, and several weeks later had a severe attack, with development of a large renal tumor. Nephrectomy was followed by complete relief. Examination of the specimen showed great thickening of the ureter at the point of previous pressure.

Case 2—Had a similar arterial trunk passing to the lower pole of the right kidney, producing definite attacks of renal pain, but of a somewhat milder character. The duration of the disease was shorter, and the changes in the ureter and renal pelvis less marked. The diagnosis in this instance was established by uretero-pyelography, which showed a distinct hook-like bend in the ureter as it passed over the aberrant vessel. On operation the vascular band was divided between two ligatures, allowing the constricted ureter to assume its normal position. This procedure resulted in a complete disappearance of symptoms.

*Fourth Group* Inflammatory exudate and bands causing pressure on or angulation of the ureter.

Case 1—Female, aged 26 years. Pain in right inguinal region for several months. Appendix removed without relief. Pain paroxysmal, radiating from kidney to groin. Microscopic blood in urine. Cystoscoped. Ureteral orifices normal. Ureteral catheter meets obstruction below kidney pelvis. X-rays show faint shadow just above posterior iliac spine. Ureter explored by longitudinal incision in flank. Marked angulation caused by inflammatory band. This was removed, the ureter opened, and bougie passed upward to kidney and downward to bladder. No further obstruction encountered. Wounds closed. Primary healing with complete relief.

Case 2—Male, aged 40 years. History of left-sided colic for four years, becoming more frequent during past three months. Pain very severe, radiating to groin. Cystoscoped, urine from left kidney blood stained, that from right clear. X-rays showed round shadow near transverse process of fourth lumbar vertebra, which corresponded to point of greatest tenderness to pressure. Ureter and kidney explored, no stone found, only an inflammatory thickening around the upper ureter and pelvis of kidney. Recovery.

Case 3—Was that of a middle-aged man who suffered from severe paroxysmal attacks of left-sided renal colic associated with more or less constant pelvic pain. The X-ray examination was negative except for an obscure shadow, not well circumscribed, in the region of the vesical extremity of the ureter. The pelvic portion of

the ureter was exposed by an inguinal extraperitoneal incision. It was found to be greatly thickened and distended. Followed downward to the bladder, the terminal 2 cm ended in a dense fibrous cord apparently imbedded in a mass of inflammatory exudate at the fundus of the bladder. On attempting to free the ureter from this mass, it parted, the divided end showing marked thickening of its walls, permeated by a narrow pin point lumen, through which exuded a small amount of purulent urine. The distal stump was ligated. The thickened and strictured proximal portion was excised allowing the escape of a large amount of foul-smelling pus. After evacuation and cleansing the free extremity was implanted into the bladder, about one inch above the remaining stump. Wound closed with drainage. He made a satisfactory recovery and remained free from symptoms.

The last case which I shall report is one of unjustifiable error in diagnosis but it presents so rare an explanation for a positive X-ray finding that I deem it worthy of record. The patient, a man of 48 years of age, complained of mild but persistent pain deep seated in the left groin, generally accentuated by physical effort. As a result of a general physical examination the only sign found was a pronounced tenderness to deep pressure in the left iliac fossa. There was no history of renal colic, no enlargement of the kidney, no evidence of intestinal obstruction, and no marked impairment of general health. The symptoms however prevented his regular work as a day laborer. To clear up the diagnosis an X-ray plate was made of the lower abdomen and pelvis. In this plate was a clearly defined small oval shadow about the size of a bean, well circumscribed, and situated in the usual course of the ureter just above its vesical extremity. Feeling confident that we had to do with an arrested calculus, the ureter was exposed in the usual manner and followed down to the bladder with out palpating in its lumen a foreign body. So confident were we that there must be a stone, that the ureter was opened and proved to be empty by the passage of a catheter downward to the bladder, and upward to the kidney. After closure of the ureteral wound the region was again palpated carefully and a small hard nodule felt in contact with the lower end of the tube. In attempting to expose thus the peritoneal cavity was opened, and the calcified tip of an appendix epiploica was found adherent to the parietal peritoneum overlying the ureter.

To have operated upon this man was clearly a mistake in judgment. All that can be said in extenuation is that it was one of my earlier series of cases, and occurred before the general use of the cystoscope and ureteral catheter and before the now more accurate method of radiography had

been perfected. The patient recovered from the operation, and although unrelieved, seemed grateful for the assurance that he had no grave or incurable disease.

From a study of the cases cited in this report, it will be evident that in most instances the symptoms were simply those of an intermittent hydronephrosis from any cause, and as in the early days of the surgery of the kidney and ureter, calculus was the most frequently recognized cause of obstructive disease, it is not surprising that calculus, somewhere in the upper urinary tract, was the preoperative diagnosis in the majority of instances.

While we are all aware that a sudden complete blocking of the ureter in any part of its course gives rise to a group of symptoms which are characteristic and rarely simulated by any other condition, consisting of severe paroxysmal pain radiating from the flank downward along the course of the ureter to the groin, bladder, glans penis or testicle in the male, and to the labium or urethra in the female, frequently accompanied by vomiting and often suddenly relieved and followed by an abundant anuresis, it must be remembered that if the obstruction is incomplete, the pain may be less severe, fixed, and often confined to a small area as the upper right quadrant, or the region of McBurney's point, and may thus simulate the pain of a gall bladder or appendix colic. I think I may fairly state that in at least one-third of the cases of ureteral calculus on the right side upon which I have operated there had been performed a previous operation for removal of the appendix or an exploration of the gall bladder, and I myself must plead guilty of having operated on two such cases.

In cases of subacute hematogenous infection of the right kidney, the chances for error in diagnosis are even greater, as the paroxysmal and radiating character of the pain is less marked, and there is almost always a rise in temperature and a polynuclear leucocytosis. If time permitted I could give the histories of many cases in which this error has been made.

While not strictly germane to the subject of this paper I feel that it is well always to keep in mind this frequent source of error and in all doubtful cases to search for red cells in the urine, examine for the presence of costovertebral tenderness and if possible secure an X-ray plate

## SURGICAL PHYSIOLOGY AND PATHOLOGY OF THE COLON FROM THE X-RAY STANDPOINT

By JAMES T. CASE, M.D., F.A.C.S.  
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**A** TWENTY-MINUTE discussion of such a comprehensive subject as the roentgenologic aspects of colonic physiology and pathology of interest to the surgeon would of necessity be largely given over to generalities and bare statements so undetailed as to lack value. I will, therefore, confine myself to a study of colonic peristalsis under normal and pathological conditions, and to the diagnostic and operative errors into which one may be led if unaware of the changing appearance of the colonic shadow during peristalsis. Particular emphasis will be laid upon the prolonged stay of food residues in the cecum and proximal colon, and the resulting right-sided pain, distention and fullness suggesting appendiceal involvement, due to some obstructing organic or functional lesion in the distal colon or rectum, and to the importance of studying carefully the entire colon, including the pelvic loop and the rectum before accepting, as the explanation of the right-sided pain, such relatively rare or inconsequential lesions as adhesions of the terminal ileum, or cecum, fixation of the appendix, so-called Jackson's membrane, hepatocolic bands or membranes or a supposed ptosis of the transverse colon. That one or more of these processes in a serious form is occasionally encountered will be admitted, of course, but in a large percentage of cases of right lower quadrant colonic pain, the cause will be found in the distal colon.

The outline of the normal colon, from the roentgenologic standpoint, is exceedingly variable and ever-changing. We must recognize that the stomach and intestines are not mere chemical retorts, but functioning peristaltic organs, and it is with the motor function that as physicians and roentgenologists we are most concerned, not the morphological factors. Of the sum total of data concerning the colon demonstrable by X-ray observations, the estimation of ptosis is of least interest to me since we regard a low position of any part of the colon as a symptom, as for instance a result of weak abdominal muscles, not as a direct cause of stasis. We do not overlook the importance of a prolapsed elongated pelvic loop.

Under the fluorescent screen, during the sixth to the thirty-sixth hour following the ingestion of a barium meal, the gloved hand of the examiner palpating through the abdominal wall should find the cecum and ascending colon fairly well movable, the two legs of the hepatic and splenic flexures separable, the position of the

transverse colon easily altered, and in all but very heavy patients, the mobility of the pelvic loop demonstrable. Several observations covering these points should be made during the time mentioned, careful search being made at the same time for filling defects due to intra- and extra-colonic tumors. Similar palpatory scrutiny under the screen during and following the introduction of the opaque enema will serve as a valuable check on the foregoing study, especially if it is possible to tilt the fluoroscopic table into the Trendelenburg position while the screening is in progress.

The position and shape of the transverse colon is especially variable, as was first shown by Rieder, who showed that this segment of the large bowel suffers a considerable dislocation due to turning and winding snake-like movements without any actual transportation of the contents of the bowel. The recognition of these dislocatory "large pendulum movements," as Rieder called them, will surely lessen the tendency to attach much importance to the exact position and shape of the transverse colon, and deter any surgeon from operations designed to fix the height of this portion of the bowel. For instance, at one observation the transverse colon may lie almost entirely above the umbilicus. Half an hour later, it may show a deviation downward to the left of the umbilicus. After another half hour, it may represent a "V" with the apex low in the right iliac fossa. And all this may have occurred without any shifting of colonic contents.

The prevailing movement in the proximal colon under normal conditions is antiperistaltic in its effects, tending to retain materials in the cecum and ascending colon. Under abnormal conditions there is no doubt that the antiperistaltic tendency is very greatly increased, as I will illustrate later.

The distal colon has as its characteristic activities churning and onward movements. Haustal churning is occurring constantly in the distal colon, serving to keep the materials in this region thoroughly mixed and also aiding somewhat in the onward propulsion of the bowel mass. This churning activity is analogous to the segmentation which occurs in the small intestine. Churning is also accomplished by the large pendulum movements of Rieder above referred to and by respiratory action.

But the principal propulsive movement of the colon, serving to move the bowel contents from the antiperistaltic influences of the proximal colon into and through the distal portion of the colon is the spontaneous large contraction activity first described by Holzknecht, to which I applied the term "spontaneous mass movements." In this striking phenomenon, the bowel outline suddenly loses its haustral markings and takes the shape of an ovoid elongated sausage-shaped mass.

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 23, 1920.

with smooth edges, rounded at the ends. This mass at once begins to move at about twice the rate of peristaltic waves in the stomach, the rate and distance traversed varying according to the case. I have seen such a mass travel from the cecum to the pelvic loop without a stop. When it does come to rest, the mass resumes its haustal indentations more or less rapidly, depending on whether the bowel contents are semi-fluid or of firmer consistency. These movements are often accomplished by gurgling sounds, the so called borborygmi. That these large, sometimes stormy, movements are frequently seen in pathological cases there is no doubt. The diarrhoeal cramps of man are often accompanied by these mass movements. Nevertheless in most of the numerous observations I have made on these mass movements, the patient has not recognized any subjective sensation during the progress of the mass, except an appreciation of needing to defecate. It may be inferred therefore, that the large colon movements have a relation to bowel evacuation, they are most constantly seen before or during defecation.

The foregoing remarks have all had reference to observations made after the ingestion of an opaque meal. During and following the opaque enema one frequently sees a large ring constriction passing along the colon distalwards, and sometimes in the antiperistaltic direction. In cases of colonic spasticity a relatively small enema will start up ring constrictions which in mass speed and depth resemble the mass movements above described—the large colon movements of Holznecht. They seem definitely the result of distention and are seen to begin most often at the cecum.

Further factors in the forward propulsion of colonic contents are the filling and emptying of the stomach, and especially of the colon itself. Respiratory movements also exert a certain effect.

Among the various phenomena brought about by peristalsis under normal and pathological conditions are several which may cause serious diagnostic error if allowed to go unrecognized. Of the more important possible errors the following will be discussed in this paper.

1 Pseudo filling defects due to peristaltic activities, simulating the defect produced by neoplasms.

A confusing grip in the colonic shadow suggestive of a filling defect due to carcinoma is most likely to occur on a roentgenogram of the colon after an opaque enema, and will most often be seen in the ascending colon or in the iliac colon. Error will be avoided if one supplements the plate by a screen examination and particularly if the injection be done under intermittent screen control.

A somewhat comparable pseudo filling defect may be simulated by the presence of collections

of air inadvertently injected along with the opaque enema, when the patient lies prone, as is customary during the exposure of the plate, the air seeks the highest attainable segments of the colon. In the prone position this is likely to be in the middle of the ascending colon and in the upper half of the descending colon. Here again the avoidance of error will be easy.

2 Proximal colon stasis, especially cecal stasis due to exaggerated antiperistalsis, which may be incorrectly attributed to membraniform or band adhesions involving the cecum, ascending colon or hepatic flexure or to the supposed prolapsus of the transverse colon.

It is interesting to note that during the development of operations for the surgical relief of intestinal stasis, the tendency has been to look more and more to the distal colon as the seat of obstruction. Early discussions on intestinal stasis mentioned adhesions of the terminal ileum and of the cecum and appendix. Pericolic membranes next held the stage, and many operations, some useful, many meddlesome, were performed under the belief that the cecal stasis demonstrated by X-ray study was due to loose adhesion bands about the cecum and ascending colon, or between the gall-bladder, inferior surface of the liver or duodenum and the hepatic flexure of the colon. A very early fallacy was the notion that if the transverse colon reached a point below the umbilicus with the patient in the erect position the drag on the relatively fixed hepatic or splenic flexure produced kinking at the flexures and resulting obstruction. Many operations were devised for lifting the transverse colon, such of them as produced fixation interfered with both the large colon mass movements above described and the large pendulum movements of Rieder.

All of the above mentioned pathologic states such as pericolic membranes, carcinoma or tuberculosis of the ascending colon, adherent appendix or hepatocolic bands, may with relative infrequency become causes of cecal delay. But I have come to believe that the cause of exaggerated antiperistaltic activity, with resulting stasis in the proximal colon, especially in the cecum and ascending portion, will usually be found in the distal colon most likely in the pelvic colon or rectum. Commonly the obstruction will be functional, due to enterospasm, yet in a considerable percentage of cases it will be found to result from adhesions of the pelvic loop, the pressure of large pelvic tumors, carcinoma, peridiverticulitis, incarceration of a prolapsed redundant pelvic colon, or to rectal lesions such as hemorrhoids, fissure, rectal ulcers, proctitis or rectal stricture.

In a large percentage of cases we observe that the patient can empty the rectal ampulla and more or less of the pelvic loop but no more. On re-examination it is characteristic that the point of

apparent hindrance is always the same, and may be described as occurring at the pelvirectal junction, the middle of the pelvic loop or just below the ilio pelvic junction, as the case may be. Such hindrance is often explained by fixation, usually by adhesions, of a part of the colon which is normally mobile, and by careful screen observation of the colon before and after defecation, and in connection with the barium enema test, both during its injection and after its expulsion, we may determine with reasonable accuracy the presence of such binding adhesions. It may be wiser to speak of the condition as abnormal fixation, admitting that a certain degree of fixation may be within normal limits.

Enterospasm is often associated with distal colon adhesions, or it may be an expression of irritation through the central or sympathetic nervous system, or there may be a colitis or a diverticulosis. Consideration of pelvic colon adhesions as a cause of colonic stasis, often associated prominently with cecal distention and stasis, suggests an inquiry into the advisability of employing the pelvic colon to cover up raw or sutured surfaces after certain pelvic operations, such as hysterectomy or salpingo-oophorectomy. No objection is raised to covering raw surfaces with the aid of the pelvic colon, providing this organ is allowed to fall into its natural position in so doing, but in this procedure one often sees the pelvic loop of the colon crowded down in a manner to invite the very kind of abnormal fixation just discussed.

3 A point of arrest in the transverse colon just proximal to the midline which may be erroneously attributed to an organic obstruction.

The clinical studies of Roth on peristalsis and antiperistalsis in the large intestine led him to conclude that between the hepatic flexure and the middle of the transverse colon there exists a zone, on the distal side of which antiperistalsis does not occur, but on the proximal side of which both peristaltic and antiperistaltic movements may take place. Cannon, Elliott and Barclay Smith and Jacoby all describe a tonic constriction ring at about this point in the colon, which when stretched by distention of the bowel, begins to pulsate. With each pulsation there is sent off an antiperistaltic wave. By means of the X-ray, I have seen this tonic constriction ring in a number of instances. The exact location of this tonic constriction ring varies with the tonicity of the proximal colon and according to the degree of obstruction encountered by the bowel content in the distal colon. Such a ring constriction might be misinterpreted as representing a site of colonic obstruction due to an organic lesion. Various writers have observed that in patients with obstruction in the pelvic colon, gangrene of the cecum may occur, the distal part of the colon in the neighborhood of the tumor is usually much

contracted, while the cecum is very much distended, sometimes sufficient to cause gangrene of its walls. I have had one case in which there was found gangrene of the cecum in a case of carcinomatous obstruction in the sigmoid.

4 Chronic obstruction may be simulated by the disposition of the opaque residues shortly after a mass movement which has cleared the distal colon below a certain point in the descending colon. The normal evacuation of the bowels clears the colon only below the splenic flexure, immediately following such an evacuation is the most favorable time for observing the mass peristaltic movements, apparently an effort to carry the contents of the transverse colon over into the empty descending and iliac colon. Thus the disposition of the contents of the descending colon may sometimes be peculiar, suggesting an obstruction. Repetition of the examination or repeated fluoroscopic observations will, of course, rule out any error arising in this connection.

The foregoing discussion, fitting in beautifully with the theories of Alvarez, has dealt with a number of physiological conditions, some of them pathological, many of which, if unrecognized, might easily lead to erroneous conclusions. It is not sufficient to attempt to make diagnoses from X-ray "pictures," which represent only static conditions, which, as we have seen, are subject to frequent physiologic variations, the roentgen study of the colon must be conducted by fluoroscopic as well as roentgenographic means, and the value of the screen method far outweighs the value of the plates. Both should be used.

Further, it must be recognized that the evidence obtained by X-ray study constitutes only a part of the medical examination of the patient, and should be interpreted in the light of the history and other physical and laboratory findings.

## THE PREVENTION OF DIPHTHERIA \*

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**D**IPHTHERIA, like most other infections of the respiratory tract, has shown an irregular increase during the past century. This was probably chiefly due to the increasing concentration of people in great cities increasing the risk of infection from contact with unsuspected carriers of diphtheria bacilli. These infected persons we now know to have been not only actual or recently recovered cases, but healthy people who had become carriers. The disease first appeared in countries in the form of outbreaks or epidemics, but later became in the cities endemic and remained more or less prevalent at all times.

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 23, 1920.

With the discovery of the diphtheria bacillus and the use of diagnostic cultures, it seemed at first that this tendency to increase would be stopped and that a marked diminution would follow, since it would be possible to carry out the more general and accurate isolation of the true cases of diphtheria whether mild or severe. New York City began the general employment of diagnostic cultures in the fall of 1893. The city had had for the two previous years a steadily increasing number of cases. The results were disappointing. In spite of the general use of cultures for isolation and discharge the amount of diphtheria did not diminish. The reasons for this soon became evident. These were partly dependent on the failure of cultures to always reveal bacilli in convalescent cases when only a few were present in the throat as in a crypt of the tonsils, and partly on the great number of healthy persons who were carriers and who could not be cultured. It was soon discovered that not only the convalescent cases remained carriers for from a few days to many weeks, but that persons in contact with them frequently became carriers without developing the slightest disease and that those in turn infected others, who might themselves become carriers or true cases. The number of carriers was indicated in tests such as the following, a single swabbing of the tonsils revealed the presence of virulent bacilli in over one per cent of 1,000 healthy young children examined. None of these were aware of having been in recent contact with a case of diphtheria.

The technical difficulties which would be encountered in culturing a whole population and the disturbance of life that would follow the isolation of all healthy carriers, make it impracticable to even attempt to clear masses of people from infection. In institutions, schools and families however attempts have frequently been made to detect and remove carriers. The results have sometime been successful, but more often they have failed. The general outlook in 1894 was not encouraging. Just at the time this disheartening knowledge had been acquired the discovery of diphtheria antitoxin renewed hope for the ultimate conquest of the disease. The drop in deaths following its use was remarkable in every city, and was always coincident with the introduction of antitoxin, and this immediate improvement has not only been held during the twenty five years of its use but until recently this improvement has grown steadily greater so that there cannot be any doubt in any judicial and enlightened mind for the cause. At the present time New York City instead of an average death rate of about 150 per 100,000, in the decade before 1895 has one of about 22. This means an annual saving of thousands of lives in a single great city.

The influence of antitoxin upon the mortality

and morbidity due to diphtheria was twofold. An injection of from 500 to 1,000 units at the time of exposure was found to give absolute protection in all persons for ten days and in most for three weeks. Each repetition of the injection gave an added period of safety of from one to two weeks. The short duration of the protection is due to the fact that the antitoxin was produced in a horse, and as a product of the tissue cells it is a foreign protein in man, and it is therefore rather quickly eliminated.

An interesting experiment was carried out some time ago which prettily demonstrated this special quality of antitoxin. We possessed, in addition to our regular product from horses, some diphtheria antitoxin produced in guinea pigs and some in goats. We injected each of one series of guinea pigs with ten units of guinea-pig produced antitoxin, another series with ten units of horse antitoxin, and a third series with ten units of goat antitoxin. At the end of two weeks examples of each series withstood two fatal doses of toxin. At the end of three weeks only guinea pigs from the lot receiving the guinea-pig antitoxin remained protected. None of these lost their immunity till after six months. The second injection of the antitoxin is eliminated even more quickly. This is due probably to the development of antiferments to the antitoxic horse globulin. The use of antitoxin immunizing injection has been very effectual in infected families and institutions. The first trial in this country in 1894 was most instructive. An institution caring for many hundreds of young children became infected with diphtheria. Each day one to six new cases appeared. The inmates were cultured again and again but always some would escape detection or new cases would be infected during the period of the incubation and examination of the cultures. When some weeks had elapsed Dr. Biggs brought over a considerable supply of antitoxin from Europe. It was determined to give every child 300 units of antitoxin. All the children received it the same day. The outbreak stopped immediately and absolutely. On the 12th day a doubtful case developed. A second injection was given to the inmates of this building. No more cases occurred. I have never seen the use of an immunizing dose of antitoxin fail to give protection for the period the antitoxin remains in the body. As over fifty per cent of the cases of diphtheria occur in persons not known to have been exposed to cases, no amount of thoroughness of giving immunizing injections to those exposed could be expected to eliminate the greater proportion of cases now occurring in large centers of population. The use of immunizing injections must be supplemented therefore by its use in treatment.

Those that die from diphtheria do so either from the direct toxin effects or from the injury caused by the invasion of other bacteria which

have gained a foothold on account of the lowered resistance due to injury from the diphtheria poisons. The diphtheria antitoxin acts only on the toxin. It should be given therefore at the earliest possible moment and in sufficient amount. As a subcutaneous or intramuscular injection is slowly absorbed, it is necessary to give antitoxin intravenously in serious cases. As it remains in the blood for a number of days one injection suffices. There is neither harm nor benefit in giving several additional doses provided that a sufficient dose is given the first time. A later injection can never make up for the loss of the maximum effect through an insufficient primary injection.

The use of antitoxin has little if any effect in freeing carriers from diphtheria bacilli. They remain imbedded in some crypt of the tonsils or other inaccessible place. Suitable antiseptics are for the same reason of little value. Irritating antiseptics do harm. The removal of the focus is generally achieved by the enucleation of the tonsils.

Diphtheria antitoxin for the previously mentioned reasons has had more effect on the mortality from diphtheria than on its prevention. During the past few years the morbidity and death rate, as shown by our vital statistics, have become almost stationary. It is probable that with increased pressure from the health department, together with the help of the medical profession, the people may be brought to report cases more promptly and to allow immunization in their families more generally than they do now. If so, a further slight improvement in mortality and morbidity may be obtained. There will nevertheless remain a large number of cases and a considerable number of deaths, unless we can produce in the susceptible portion of the population a durable immunity. This result we believe is accomplished by the toxin-antitoxin injections. As we know that a very considerable proportion of the population have a natural antitoxic immunity it will be well to consider the test used to separate those having antitoxin from those having none before considering the production of active antitoxic immunity.

#### THE SCHICK REACTION AND ITS PRACTICAL APPLICATION

The results of combined clinical and laboratory experience in testing the blood for antitoxin in cases of diphtheria and in persons in contact with diphtheria have shown that only those individuals contract diphtheria who have no antitoxin or only a minute amount in their blood and tissues. Schick in 1913, published a description of a simple clinical test, by which this can be accurately accomplished. The reaction depends on the local irritant action of minute quantities of diphtheria toxin when injected intracutaneously. If antitoxin is absent or present only in very

small amounts, insufficient for protection from diphtheria, a positive reaction will appear in from twenty-four to forty-eight hours.

#### THE POSITIVE REACTION

A positive reaction is characterized by a circumscribed area of redness and slight skin infiltration which measures from 1 to 2 centimeters in diameter. It usually appears in from twelve to forty-eight hours, but in a small percentage of cases it is delayed for as much as three days. It persists for five to fourteen days, or even longer, and on fading, shows, as a rule, superficial scaling and a persistent brownish pigmentation.

#### THE PSEUDO-REACTION

Schick noticed that, in the older children and adults a considerable percentage showed a protein reaction which had nothing to do with the specific toxicity of the toxin. In these cases, even when the mixture was over-neutralized with antitoxin, this same pseudo-reaction developed. In most cases, this reaction came on more promptly, covered a larger surface, was more of the urticarial type, had as a rule a more reddened central area and a lighter surrounding zone, and disappeared within two to four days. Pigmentation is absent or slight, and superficial scaling is very rare. In a small percentage, however the reaction persisted for a week or ten days and it was very difficult in many of these and impossible in some to decide between a true and pseudo-reaction. When there was a combined reaction it was even harder to decide how much, if any, was due to the toxin and how much to the non-toxic protein, because the development of a true reaction in no way prevented the protein reaction.

#### CONTROL TESTS

The best practice, therefore, in older children and adults is to inject the toxin in the skin of one arm, and the toxin rendered nontoxic by heat, or antitoxin in the other arm. In this way the amount of protein reaction can be noted, and it can generally be decided whether the reaction following the toxin is a simple, true reaction, a pseudo-reaction, or a combined reaction. Even after the eye has been thoroughly trained, it is still wise to use the two injections when possible. On other occasions, when only the toxin injection is made, many cases which remain in doubt are treated as true reactions.

#### DETAILS OF THE TECHNIQUE

I think it is apparent to all that the technique of the Schick reaction although very simple, must be carried out with the greatest accuracy, or the results will be entirely misleading. If the toxin has been diluted and stored in a warm place, it may readily deteriorate and instead of

giving 0.02 of a fatal dose (M.L.D.) only one-half that amount may be injected, and no toxic reaction will occur, and the misleading idea is given that the person has been shown to be immune. If the toxin is incorrectly diluted, and a large surplus of toxin is given, slight necrosis may develop at the point of injection. On two occasions when the test was extensively employed, elsewhere in New York State, this accident occurred and some hundreds of people received undiluted toxin and developed very sore arms. The neutralized or heated toxin used for the pseudo-reaction, must also be prepared with care and if possible should be from the same preparation of toxin.

To carry out the test, it is essential to have an accurate syringe with a sharp but short pointed fine needle. Most persons prefer a needle with a length of one quarter or one-half inch and a gauge of 26. The usual 1 cc "Record" syringe answers the purpose well. The Research Laboratory places a standard diphtheria toxin in capillary tubes in such amount that the contents of one tube added to 10 cc of water gives the required dilution. The dilution will keep in the ice box with little deterioration for one-half a day. When bulk toxin alone is at hand, further dilutions are made in normal saline or such strength that 0.2 cc contains 1/40 M.L.D. for the guinea pig. Schick prefers a dose of 1/50 M.L.D. in 0.1 cc. The results obtained by these two injections are similar, but our method allows more accuracy for while it is desirable to give our dilution exactly 0.2 cc yet even such variations as 0.1 cc and 0.3 cc give fairly consistent results—the area of redness being smaller when 0.1 cc is given and larger when 0.3 cc. There is one advantage in Schick's dilution in that it permits considerable deterioration of the toxin and still leaves it sufficiently strong to be effective. It is absolutely necessary to give it intracutaneously, so that the toxin will remain in the dense tissue and have time to exert its irritant action. The slightly raised white area, at the point of injection, is infallible evidence of the delivery intracutaneously of the diluted toxin. This amount is injected, intracutaneously, on the flexor surface of the arm or forearm. The persistent pigmentation for several weeks which often results may make selection of the forearm in women slightly objectionable.

#### INTERPRETATION OF REACTION

Though the intensity of the reaction varies in different individuals a well marked persisting redness indicates an almost complete absence of antitoxin in the individual tested. Faint reactions lasting three to seven days point to the presence of very small amounts of antitoxin which are not sufficient, however to certainly protect the individual against diphtheria but are probably sufficient to protect from systemic in-

toxication. To prevent the appearance of the reaction according to Schick, the presence in an individual of at least 1/30 unit of antitoxin per cc of blood is required. With the weaker dilution we employ 1/50 unit will prevent a reaction. According to V. Behring, even as little as 1/100 unit of antitoxin will protect against the disease in uncomplicated cases. In a child three years of age, weighing 35 pounds, we found that a subcutaneous injection of 10 units of antitoxin was sufficient to prevent the appearance of the Schick test when made twenty-four hours after the injection of antitoxin.

#### THE PRACTICAL VALUE OF THE SCHICK REACTION

The Schick reaction has been carried out by us during the past five years, on all patients entering the scarlet fever pavilion of the Willard Parker Hospital. Only cases giving positive reactions were immunized against diphtheria, those giving a negative reaction received no immunization but were carefully observed. Although many of the negatively reacting patients became carriers of virulent diphtheria bacilli during their stay in the wards, no cases of clinical diphtheria developed among them. The patients who gave positive reactions received, in practically all cases, injections of diphtheria antitoxin. Previously to adopting this practice about six per cent of the cases developed diphtheria.

The percentage of individuals susceptible to diphtheria is shown by the Schick test to be greatest between the ages of one and two years. It is less during the second six months of life and less in older children and least in adults and infants under six months. In the total number of adults, the positive reactions were not more than twenty per cent. In different institutions and in people from different races and localities quite different percentages were obtained. The percentages given below are compiled from about fifty thousand tests. The table of averages is an estimate only.

#### SUSCEPTIBILITY OF VARIOUS AGES TO DIPHtheria

(As Indicated by Diphtheria toxin Skin Test in over 20,000 Persons)

Age	Average Susceptible	Range in Groups Schick	Positive
At birth	10 per cent	0	15
Under 4 months	15	0	15
4 to 6 months	30	20	30
6 months to 9 months	60	60	74
9 months to 1 year	75	65	75
1 to 2 years	75	60	76
2 to 3 years	65	50	70
3 to 5 years	40	15	50
5 to 10 years	30	8	50
10 to 20 years	25	5	50
Over 20 years	20	5	50



During systematic testing by Zingher of groups of children belonging to families, we have been impressed with the frequency with which all the children of the same family gave a similar reaction. If variations were found, the younger children, with the exception of the baby, usually gave the positive reactions. If the youngest child, above three years of age, had a negative reaction, with hardly an exception all the older children were also negative. On the other hand, if the oldest child in a family gave a positive reaction, the younger children almost always showed positive reactions. In a very few persons the skin seems to be a little less sensitive to the toxin than the average person, so that less than the usual amount of antitoxin prevents a positive reaction.

#### PERMANENCE OF NEGATIVE REACTION IN PERSONS DEVELOPING NATURAL IMMUNITY

The value of the Schick reaction as a practical guide in judging the immunity of persons depends on the duration of this condition. If the natural immunity which developed in children lasted only a few weeks, the value of the Schick test would be in the immediate emergency of an outbreak of diphtheria when sufficient time was available to make the test in order to inject antitoxin or separate from danger those who showed a positive reaction. If, however, a child or adult developing natural immunity holds that immunity for life, the knowledge that it gives a negative Schick reaction is of value, not only for the present, but for the rest of the individual's lifetime. For the past five years, we have been testing and re-testing thousands of children and hundreds of adults and keeping records. We found that, with few exceptions, that those who once gave a negative Schick test continued to show immunity during the years of observation. From this and the fact of the age distribution of immune children in families in which the younger have a positive reaction and the older children and adults a negative reaction, it would seem that when once a child develops natural immunity this is a usually lifelong possession. It is true that we have found, during the five-year period mentioned a change from negative to positive in about four per cent of the total negative cases. It is my belief that all of these supposed changes in reaction are not actual but are due to improper technique in making the intracutaneous test or in the reading of the reaction at a period when the exceptional cases might be wrongly interpreted. More careful observations in the future will show whether this opinion is correct or not. Where the same observer made the tests the changes from negative to positive reaction were not over three per cent. In tests of small groups of adults there is occasionally one showing as much as ten per cent of change from a negative to a positive reaction. While in a larger number of tests there were no changes

at all. Duplicate routine tests in a series of children proved that in about 2 per cent errors in technique occurred, since on the same arm one test was positive and one test negative. Although errors in technique and the lapse of natural immunity are so infrequent it is wise to retest young children or older persons who have just been or expect to be in direct contact with diphtheria. I know of one nurse and one sailor who contracted a moderate diphtheria seven and nine months after a negative Schick test. Six weeks after recovery the nurse showed a positive reaction.

#### DOES DIPHTHERIA OCCUR IN PERSONS GIVING A NEGATIVE SCHICK TEST?

A matter of much practical importance is whether a person with sufficient antitoxin to give a negative reaction has sufficient to prevent the development of diphtheria. We have been so in the habit of considering that a positive culture on Loeffler's blood serum indicated that the suspected case had diphtheria, that we have lost sight of the true fact, which is, that such a culture simply indicates that the case is a carrier. By tests we also know that the bacilli found in many are really non-virulent. It is also an undoubted fact that a person who is a carrier of virulent or non-virulent diphtheria bacilli may be afflicted with a tonsillitis, due to the streptococci or other micro-organisms. When a case of doubtful diphtheria has a negative Schick test and a positive culture, it is extremely difficult to decide how to consider the case. From the practical standpoint, antitoxin should be given if the case is at all serious, because there is always a possibility that there has been some error in the technique of the test, or in its reading or some mistake as to the identity of the individual. From the scientific viewpoint the matter is of special interest. During the five years we have used the Schick test, no cases of clinically undoubted diphtheria have been observed by us in persons known to have had a recent negative Schick test, while some eight cases of moderate tonsillar infection, in which the clinical diagnosis was doubtful, and with diphtheria bacilli, have been observed.

In two of these cases, no antitoxin was given, and recovery took place, as in similar cases of doubtful diagnosis in which no diphtheria bacilli were to be found in the cultures. In an adult who had given a negative Schick test eleven months previously a characteristic moderately severe case of diphtheria developed. This is the only undoubtedly true case that I have personally encountered. It seems safe to rely on the belief that a person with a sufficient amount of antitoxin to give a negative Schick test is incapable of developing constitutional toxæmia, or a severe infection from diphtheria bacilli. There is a doubt as to whether very

slight infections of the superficial mucous membrane may occur in such persons. My own opinion is that the majority of these exceptional cases are instances of streptococcus or other infection, the diphtheria bacilli being present as in a carrier. Those that show a faintly positive Schick test are liable to moderate local infections. Careful observations of these persons with faint reactions will allow us in time, to decide whether they require immunization. If this is given, it should be produced by antitoxin for the immediate danger, and toxin-antitoxin for later and permanent effect.

### TOXIN-ANTITOXIN VACCINE

Diphtheria toxin is so poisonous that in order to use it for the purpose of immunizing human beings or animals it is necessary to begin with tiny doses. The amount of each successive dose is very gradually increased. This process consumes much time, and unless carried on with the utmost skill and patience it is not wholly safe. Experimenting on guinea pigs with mixtures of toxin and antitoxin it was found that the toxin could be neutralized to the extent of not being poisonous and yet have the power to stimulate the development of antitoxin.

It is true that any given amount of toxin neutralized by antitoxin would have much less stimulating effect than the same amount of unchanged toxin, but this difference was not important because the harmlessness of the neutralized toxin permitted several hundred times as much to be given safely at the initial dose as of the pure toxin. The usual injection for all ages is approximately 400 times the fatal dose for a half grown guinea pig, to which has been added just sufficient antitoxin to neutralize it. This is about four units of antitoxin. The injection usually contains 1 c.c. of fluid and is made subcutaneously. The mixture is tested very carefully for its harmlessness before being used. As it ages the toxin disappears more rapidly than the antitoxin. A second and third injection of the same amount made at weekly intervals add greatly to the quantity of the antitoxin development from the first injection.

### THE LOCAL AND CONSTITUTIONAL REACTION TO THE VACCINE

The diphtheria toxin antitoxin mixture contains besides the neutralized toxin a considerable amount of protein substance. This is partly formed of the proteins originally present in the broth in which the bacilli were grown, and partly from the remains of broken down or digested bacilli in the cultures. The reaction to the injection is similar to the typhoid vaccine, but it is of less severity.

The element of age is very important. The infant shows in the great majority of cases neither local nor constitutional reaction, while

grown up children and adults exhibit in perhaps 30 per cent of the cases considerable local swelling and more or less definite constitutional disturbance. Within twenty-four to seventy-two hours all disturbance is over. No lasting deleterious results have occurred. Children of ages between one and ten years vary in the amount of reaction according to their age. The youngest shows the least and the oldest the most.

### THE CAUSE OF NATURAL IMMUNITY

Those persons who are naturally immune against diphtheria are usually so from having antitoxin but may be so from the possession of other protective substances. The antitoxin we can measure by the Schick test but we have no practical way to detect the bactericidal substances.

### THE IMMUNIZING RESULTS IN SUSCEPTIBLE CHILDREN

These are measured by the percentage of susceptible persons who become immune and by the persistence of the immunity. The antitoxin develops slowly after the injections are begun and gradually increases. In only a few cases does an appreciable amount of antitoxin develop in less than three weeks after the first injection. The majority respond during the second month. There are a few who become fully immune only during the sixth month. The results in 529 children who were carefully observed by Zingher were as follows:

No. of doses of 1 c.c. Toxin Anti- toxin	No. of children	No. of chil- dren Im- mune Three Months After Injec- tion	Percent Im- mune After 3 Months
1	239	175	73
2	89	80	90
3	201	191	95

These figures approximately agree with our results in thousands of later cases. In young infants who are still retaining their parents' antitoxin transferred to them passively before birth we have not had successful results. Tested one year afterwards only about thirty per cent were found to be immune. This percentage is about as great as among those not treated. Some 2400 infants of an age under one week have been injected with absolutely no bad effect.

### THE DURATION OF IMMUNITY

Our observations have been made in children's institutions. More than one hundred children who received the injections have been watched by Drs. Zingher and Schroder for a period of over four years, and up to the present time the immunity has persisted in more than 90 per cent. It seems as if the stimulus of the injections arouses dormant cell activities to produce anti-

toxin, and that this production having once started continues without further specific impulse

#### MOST SUITABLE TIME FOR IMMUNIZATION

As immunization is successful at any age after six months and as diphtheria is most fatal during the first years of life, the most favorable age period for its administration is from six months to five years

#### THE CAUSE OF NATURAL IMMUNITY

We have absolutely no knowledge of the stimulus which excites the cells to produce this natural characteristic antitoxin. The fact that a greater percentage of city as contrasted with country inhabitants are naturally immune might be partially due to so many being at one time or another carriers. The fact that horses and many animals possess natural diphtheria antitoxin, and that it usually develops at a definite age, and that it remains present throughout the duration of life indicates that this at best can only be a partial explanation

### MESENTERIC VASCULAR OCCLUSION.\*

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CONSIDERING its importance from the standpoint of prognosis and treatment, the subject of mesenteric vascular occlusion has received little attention in our literature. It is mentioned rather infrequently in our current publications and our standard text-books either ignore it entirely or give it only cursory notice. The contribution of Jackson, Porter and Quimby<sup>1</sup> in 1904 is one of the most valuable in American literature. Trotter's<sup>2</sup> monograph is perhaps the most comprehensive study available. He was able to collect 366 cases to which he added seven original cases. French, Italian and German writers have given it much more attention than has the English speaking profession. The writers to whom I have had access dwell principally on the symptoms and treatment and all emphasize its high mortality and the danger of delay in operation. Few, if any, give a clear picture of the actual operating table pathology, a description which would enable the surgeon to positively recognize his first case.

It is my conviction that mesenteric vascular occlusion is not so rare a thing as is commonly supposed. The impression of many with whom I have conversed seems to be that "it is a medical curiosity—they have never encountered a case. They see the usual run of obstruction cases, volvulus, strangulated hernia, intussusception, but mesenteric thrombosis, never." I hold differently. I have seen seven proved cases in less than two years and I am convinced that in the past I have failed to recognize many more. We

must ever bear in mind that intestinal obstruction is but a symptom, "an evidence of things unseen." If mesenteric vascular occlusion is in any way a factor, new and serious problems are at once interjected into what may otherwise seem a fairly simple, remediable condition. Its existence or non-existence in an obstruction case often spells the difference between a good or a bad prognosis and vitally influences the proper mode of treatment. Its recognition thus becomes a matter of decidedly more than academic interest. It is the purpose of this paper to give a word picture of this condition based on the study of these original cases and to attempt to codify its symptoms.

In the first place there appears to me to be two well-defined forms. (a) In the *primary* mesenteric vascular occlusion the symptoms produced and the conditions found at operation or post-mortem are not associated with or caused by any other abdominal lesion. In other words, there exist none of the other and commoner causes of intestinal obstruction. Nor is it secondary to any septic process within the abdomen or to any recent abdominal operation or traumatism. These cases develop *de novo* so far as the abdominal cavity is concerned and disregarding any predisposing causes that may be present. The process is one of thrombosis or embolism and is due to remote causes such as vegetations from the heart valves or to obstruction to the venous return. It may result from clots being swept from a distant operation, one reported case complicating convalescence from thyroidectomy.

The practical interest in this form lies in the fact that if the surgeon, operating for the relief of intestinal obstruction of unknown cause or for exploratory purposes, fails to recognize the true pathology, he may close the abdomen with the diagnosis of a self-reduced volvulus or he may merely drain, as has been done in a number of reported cases. If, on the other hand, frank gangrene be found—a rare thing in early cases—he may resect and feel justified in a favorable prognosis. But the true pathology recognized and the possibilities of extension considered, his prognosis would be very guarded and later embarrassment averted.

(b) The *secondary* form occurs as a complication of various septic processes within the abdomen, usually several days after operation, or it may be associated with one or the common forms of intestinal obstruction. In Case 7, seen in consultation since this paper has been in preparation, a knuckle of gangrenous intestine not more than 1½ inches in length and not involving the entire circumference of the gut, was found strangulated in the femoral ring, a condition which would ordinarily offer a good prognosis. But above this were several coils of bowel presenting all the signs of mesenteric vascular occlusion. I advised an absolutely bad prognosis.

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 24, 1920.

against the judgment of the operator, for the patient had advanced arterial disease and extension seemed inevitable. Events justified my pessimism. As a complication of recent clean or septic abdominal surgery, it is doubtless responsible for many deaths in what might otherwise have been successful cases. Indeed, I am inclined to believe that post operative paralytic ileus is often really mesenteric vascular occlusion.

The importance of recognizing this secondary form is obvious. If the surgeon relieve only the strangulated hernia or the intussusception, believing that those dusky coils of intestine will recover, he has not given his patient the chance for recovery to which he is entitled.

Symptomatically these cases are susceptible of another classification viz, the (c) *fulminating* and those of slower, more insidious development, the (d) *phlegmatic*. Either of these types may appear as primary or secondary occlusion. In this series, only one of the primary (Case 2) and one of the secondary (Case 4) were of the slow type. The others were of the fulminating type. Their seizure was sudden and violent a veritable mesenteric apoplexy and the course rapid, from seven to seventy-two hours before operation. Cases 5 and 7 were fulminating secondary cases the first having obstruction from a tight band and the other already referred to complicating strangulated hernia. Case 2 was primary phlegmatic. His symptoms did not drag on for weeks as have some reported cases but they were never very severe. I operated on his fourth day of vague abdominal distress for what I thought might be sub acute appendicitis, especially as this disease had been diagnosed in his case some years before. The appendix hardly seemed to account for his symptoms, however and I failed to correctly interpret the significance of two or three coils of dark red heavy intestines which presented themselves or of the straw colored fluid which was present in considerable quantity. He did not improve and on his eighth day of illness I reoperated and made the correct diagnosis but it was then too late. Case 4 was of the secondary phlegmatic type. This patient was operated for a ruptured appendix and for a week did well. Then so slowly that we could hardly date the beginning of trouble her bowels became gradually inactive and by the end of the second week it was evident that the abdomen must be reopened. Extensive involvement was found and resection done but she did not survive during two weeks after the second operation from irritation and sepsis.

But whether the cases are primary or secondary fulminating or phlegmatic on opening the abdomen the conditions found are characteristic. Once recognized they are unmistakable. There will be found a considerable quantity of free fluid clear and without floculi odorless

slightly sticky, and from light straw to dark amber in color. The involved coils of intestine are dark red or cyanosed, saggy and lifeless. In my cases, widespread gangrene was not present, probably because of the early period at which they were operated. In some of them the bowel presented segments which were mottled, the dark arc is being deep purple and extending from the mesenteric border toward the free side. These were undoubtedly thrombosed venous trees. The mottled segments alternated with segments which were merely dark red, a few inches of one succeeding a few inches of the other. In some of the cases small oval areas of almost complete necrosis were found, but I feel it important to emphasize the fact that massive gangrene was not observed. The peritoneum except for the areas of complete local death, had not lost its lustre, but it appeared thick and soggy.

The involved coils are not distended. They do not tend to crowd out of the wound as in the gaseous distention of peritonitis, but rather to lie inert within the abdominal cavity as though held down by an unseen weight. And this is the case, for they are partly filled with fluid which slops about as they are handled literally pouring from coil to coil. They may be likened to a thin rubber glove partly filled with water, not to a toy balloon tensely blown up. The free fluid found and that within the intestinal lumen is of course serum which has transuded from the obstructed vessels. As these coils are manipulated, they give a sense of weight and feeling of thickness unlike any other condition I have encountered.

The mesentery supporting the involved coils and this may vary from a few inches to practically the whole length of the gut, is likewise thick heavy and water-logged. One might compare it to a mass of wet blotting paper. It feels doughy and soggy. Thrombosed vessels may be seen although they may be obscured by the tumefaction. And in all my cases—in my opinion a very characteristic feature—one or more leaves of the mesentery, forming a thick mass, hung down over the sacral promontory, the attached coils resting deep in the pelvis. As one's finger is insinuated round and under this mass it gives the impression of being adherent by its distal extremity to some pelvic structure, but with further force a congested loop of gut with its watery contents appears. There is no adhesion only the force of gravity and negative pressure have to be overcome, but it comes up out of the pelvis with much the same dragging sensation as the swimmer in a heavy bathing suit feels when he lifts himself out of the water.

In all my cases the middle third of the small intestine has been chiefly involved so that these pelvic coils overlaid the normal occupant of the pelvis part of the lower third, which would be

found entirely concealed by the thick mesentery and swollen coils. It may be this dragging down of the mesentery that has given me the impression that the mesentery is either abnormally long in these cases or that its root has an abnormally low attachment, a possibly important etiological factor. But whether this is a cause or a result of thrombosis, I can not say.

**Symptomatology** Here again my statements are based on the study of this series of cases except as noted. The fulminating cases, especially in the primary form, present a symptom-complex which appears to me to be sufficiently definite and regular as to constitute a disease entity. The phlegmatic types are less easy of recognition. Their symptoms are vague and if secondary, are added to and confused with, those of the pre-existing trouble. The *pain*, in the fulminating cases, is sudden, violent, not localized to any small or definite area, and marks the onset of the disease, or if the process is secondary, is added to the symptoms already present. It has been rather worse over the left half of the abdomen in my cases. In violence it suggests that of acute pancreatitis or rupture of a viscus. Together with the vomiting, it dominates the picture during the first stage of the disease.

In the phlegmatic type pain is not constant or severe. It is a relatively small factor in the symptom-complex and varies from vague abdominal unrest to moderately severe cramps. When this type of mesenteric vascular occlusion is superimposed on another lesion it is often impossible to exactly date the onset of the complication, so insidious is its development.

**Vomiting** occurs early in all forms. In the fulminating type its appearance is coincident with the pain and both come like a bolt out of a clear sky. One of my patients (Case 1) suffered his seizure on the street. The others (Cases 3, 5, 6 and 7) were about their ordinary occupations and feeling perfectly well. The vomiting may become stercoraceous. One feature of it appears to merit special note: vomiting tends to cease spontaneously in a few hours, in my opinion because peristalsis is *only* reversed from the limit of thrombosis upward—there is no activity in either direction in the occluded portion—and when the upper segment empties itself, vomiting stops or becomes very infrequent. Blood was not noted in any of these cases although most writers mention it as quite characteristic of the vomitus in these cases.

There is *disturbed function* of the bowels ranging all the way from an initial diarrhoea of short duration to absolute obstipation. Total obstruction, however, was observed only in the secondary form, where the initial lesion produced it. On the contrary, and a very significant symptom, in the primary cases the bowels will respond to enemata and cathartics, feces, mu-

cous and flatus being expelled, sometimes spontaneously. Blood in these movements is said to be quite characteristic, but was noted only in Cases 3 and 7 of this series. But always there is the feeling that the bowels have not moved properly, that the canal is not freely open. Often the patient will say that he feels sure that a good, free bowel movement would cure him, but that these small, frequent movements do not come from high enough up.

Muscular rigidity in mesenteric vascular occlusion, *per se*, is not to be compared with that seen in any other equally grave abdominal condition. This appeared a notable symptom to me in patients almost crazed with pain. In my two late cases (Cases 2 and 5) as peritonitis developed, muscle spasm became marked. So too with singultus, it is a symptom of terminal peritonitis.

Nor is there great abdominal distention. In none of these cases was the abdomen blown up as in peritonitis except where the latter had supervened. The abdomen is only moderately full and the percussion note is dull, almost flat in some instances. This is as one would expect, having in mind the conditions found within, an intestine soggy and thick-walled, partly filled with fluid.

The condition itself is an afebrile one. All of these patients entered the hospital with normal or subnormal temperatures. The pulse varied from 65 to 80 in six of the patients and was 110 in one. It is soft, therein differing from lesions in which peritonitis is a factor, and is liable to be irregular. In the fulminating cases the patient is in more or less shock. I am unable to say that the degree of shock is an index to the amount of bowel involved. The facial expression is anxious and suggests grave illness.

**Diagnosis** Mesenteric vascular occlusion is a disease of adult life and more than 70 per cent of the cases are over 45 years of age. Trotter gives the ages of six of his seven cases. Five ranged from 46 to 64. One was but 29. Of my cases five were between the ages of 45 and 64. One was 29 and one was 35. Trotter says 64 per cent occurs in males, while in my series only 43 per cent were males. The existence of possible sources of emboli is important in considering this diagnosis. The symptoms of greatest significance are (1) incomplete intestinal obstruction—small ineffectual bowel movements, (2) the slight degree of muscular rigidity as compared to the severity of the pain, (3) moderate distention *without* tympany, (4) the absence of pulse or temperature reaction except after the development of peritonitis, and (5) the self-limited vomiting. The presence of blood in the vomitus and stools unless otherwise explained, mentioned by nearly all writers,

is another valuable sign, but was observed by me only twice.

Given a patient presenting the above group of symptoms, as Trotter says, mesenteric vascular occlusion "merits a place among possible alternative conditions." To my mind it is most likely to be confused with acute pancreatitis or rupture of a viscus. In both these conditions in my experience, however, rigidity has been almost board-like, the vomiting of longer duration, and the upper zone of the abdomen more distinctly involved. As the diagnosis of any one of the three points to immediate operation, a tentative diagnosis is sufficient for practical purposes.

The prognosis is bad. Moynihan says no surgeon can show a mortality of less than 50 per cent. It has been far higher in the reports I have seen. Trotter gives 5 deaths in 7 cases, a mortality of 71 per cent, but one of his recoveries was not operated and he admits some doubt as to the correctness of the diagnosis. I had 6 deaths in 7, or 85 per cent. Even when operation is done early, I believe an extension of the process is quite possible. In extensive involvement, the shock of excision of a long portion of intestine is of itself great and should this be survived the patient may succumb to slow starvation from the loss of so much absorptive surface.

The treatment of mesenteric vascular occlusion can be briefly stated. It is purely surgical—wide excision of the effected coils and either anastomosis or enterostomy. On account of its time saving, the latter will be the preferred method in most cases and I shall practise it oftener in the future than I have in this series. In strangulation, experience has taught us that often a very bad looking intestine will survive. The important thing to remember in this condition is that although the bowel does not appear so badly damaged, it can not live with its blood supply cut off, it must surely die. No matter how extensive, it must be dealt with on this basis: wide excision offering the only hope. Herein lies the necessity for its recognition.

In conclusion, from the fact that most contributors to this subject are able to report several cases each and inasmuch as I have personally observed seven cases in less than two years in which gross vascular occlusion was present as the deciding factor it is my conviction (1) that this condition is by no means so rare as is commonly assumed, but that it must frequently pass unrecognized, (2) that it presents a group of symptoms which, if not positively diagnostic should at least put the surgeon on his guard before operation, and (3) that the

GENERAL DATA							
Case number	1	2	3	4	5	6	7
Male	1	1			1		43%
Female			1	1		1	57%
Age	29	56	47	35	63	45	64
Arterio sclerosis marked		1			1		1
Large uterine fibroid						1	
CLASSIFICATION, TYPE AND ASSOCIATED LESION							
Primary form	1	1	1			1	57%
Secondary form				1	1		43%
Strangulated hernia femoral						1	
Old adhesion band					1		
Suppurative appendicitis (operated 13 days before)				1			
Fulminating type	1		1		1	1	70%
Phlegmatic type		1		1			30%
SYMPTOMS							
Violent sudden pain	1		1		1	1	70%
Vague pain		1		1			30%
Vomiting early	1	1	1		1	1	85%
Duration of vomiting hours	72	24	9		15	2	140
Bowel movements feces flatus and mucous	1	1	1	1		1	85%
Blood in stool			1			1	30%
Percussion dull or flat	1	1	1	1	1	1	100%
Temperature 96 to 99	1	1	1	1	1	1	100%
Pulse 66 to 80	1		1	1	1		
Pulse 80 to 110		1				1	
OPERATIVE DATA							
Duration of disease when operated (hours)	72	168	22	48	18	7	72
Resection inches	0	0	90	15	10	18	0
Enterostomy	1	1					1
Anastomosis			1	1	1	1	
Appendectomy	1	1					
Herniotomy							1
Result	D	D	D	D	D	R	D

pathological conditions found are characteristic, diagnostic and due only to this

Sir Berkley Moynihan, in his "Abdominal Operations," says "It is not altogether unsafe to say that an acute abdominal pain which a small dose of morphine does not wholly remove is not rarely due to a lesion within the abdomen that only an operation can relieve." If this dictum were more widely accepted, our statistics of intestinal obstruction cases would not make such sad reading, for it is in this class of diseases where dangerous delay is still too often seen

Tabulated analysis of the cases comprising this series will be found on page 167

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### THE PATHOLOGY AND TREATMENT OF CORNEAL ULCERS

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**T**O understand readily the pathology of the corneal ulcer it is well to consider the healing process of a simple wound of the cornea, for example the penetration of a keratome. On withdrawing the instrument the aqueous escapes but is rapidly secreted again, the new formed aqueous differing from the normal in containing a larger amount of proteid. It is now capable of forming a fibrinous coagulum, and this is of importance in the process of healing. We shall speak of this again in the treatment

To have a clear picture of this healing process let us renew our ever vanishing knowledge of the structure of the cornea. The epithelium is divided in three layers, the outer flat, the second irregular or polygonal prickle cells, and the third columnar cells. Next comes Bowman's membrane, or the anterior elastic membrane, a thin homogeneous layer, containing no corpuscles. The next layer, substantia propria, which comprises the greater part of the cornea, consists of lamellæ cemented together, and although running parallel with the cornea, interlace in various ways. In this layer the corneal spaces are found, which are stellate in shape and shown by silver nitrate staining. Passing between these spaces are numerous canaliculi, constituting a system of lymph passages. These anastomose with the lymphatic vessels of the corneal border, and in this way the cornea is nourished. Corneal corpuscles are found in these spaces, some fixed and some wandering, the latter are lymph cells which have found their way into the cornea from

the marginal network of blood vessels and become numerous under pathological conditions. The fourth layer is known as the posterior elastic lamina, or Descement's membrane, forming the posterior layer of the cornea, but is distinctly separated from it in structure. It resists greatly pathological processes. Lining this membrane is a layer of endothelial cells.

The nerve supply of the cornea is numerous, derived from the long ciliary nerves (via) nasal branch of the ophthalmic, also from short ciliary nerves of the ciliary ganglion and a few conjunctival branches. The nerve supply is fullest in the anterior part of the cornea, but many branches pass to the posterior layers, very fine nerve fibrils passing through the canaliculi and lacunæ or spaces of cornea.

Going back to the healing process in the cornea of a simple wound we find very soon after injury apposition of the cut edges, especially of the middle and posterior layers of the substantia propria brought about by the inhibition of fluid by the corneal lamellæ, whereby they swell so that the cut ends come in contact. The cohesion rapidly becomes sufficient to withstand the intra-ocular pressure so that the anterior chamber is reformed. In favorable cases this is complete in a half hour and in unfavorable cases may be delayed a day or more. Under these latter conditions the nutrition of the cornea is liable to suffer.

At the anterior and posterior surfaces the wound gapes, owing to the normal elasticity of the tissues which contract leaving anterior and posterior triangular areas, the apices of which are directed toward the coherent part. The anterior edges are quickly filled in with epithelium (24 hours). This takes place both by movement of cells and also by cell division, but especially cell division, a few layers of cells back from the wound thus pushing the old cells into the wound, which become agglutinated together to form a base for an advance of more cell division.

The posterior triangle is smaller and similarly though more slowly filled with the endothelium (Peters). Descement's membrane is more elastic and therefore contracts more than any other part of the cornea. The cut ends curl up in a spiral which is directed forwards, the anterior surface of the membrane retracting most. The endothelial cells are carried into the wound and form heaps of cells at the edges. The same or a similar process goes on here as in the anterior opening of the wound, old cells being pushed into the wound and cell division near it except a projecting membrane appears to be formed across from the two convex surfaces of the turned in end of the endothelium. Gepner and Wagermann say the cut ends of Descement's membrane never reunite.

The substantia propria never regenerates, it is replaced by a scar tissue. The lamellæ are not always in contact even in the middle, being separated by a fibrinous coagulum from aqueous humor containing few leucocytes. The corneal wandering cells proliferate and later from these fibrous tissue fibrillæ are formed running in irregular bundles horizontal, oblique, and vertical. These bundles become more horizontal as time goes on, forming a compact scar the younger the cornea the more closely does the scar approach the structure of normal tissue.

Cocaine has a decided deleterious effect upon the cells during repair diminishing karyokinesis.

Abrasions which involve only the epithelium are rapidly filled in probably at first by the pressure of the neighboring cells, and later by karyokinesis. Such abrasions heal without leaving any opacity, but when injury extends deeper and involves Bowman's membrane the loss of tissue is replaced in the same way by epithelium only. Bowman's membrane is never reformed and the thickening of the epithelium persists for a prolonged period. In late stages it resembles the normal corneal epithelium the basal cells being cylindrical and lying directly upon the substantia propria or on a thin layer of scar tissue, the only difference being an increase in the number of the intermediate prickle cells.

Even when the loss of substance is greater and involves the superficial lamellæ the wound is at first clothed with epithelium and then filled in with the same cells. Cell division then occurs in the zone around the wound, exactly as in the case of perforating wounds. Finally the granulation tissue increases more rapidly than the epithelium the latter being pushed more and more towards the surface. This granulation tissue is partly derived from the walls of the larger new vessels which possess a connective tissue adventitia the smaller ones being mere endothelial tubes. This granulation tissue is not profuse owing to the lack of vessels, differing thus from a scar in the skin. This granulation tissue finally consolidates into scar tissue as fibrous tissue is produced, this being due to a change of granulation cells to spindle cells. These bundles of this fibrous tissue are smaller than the normal lamellæ and disposed irregularly, causing the production of a permanent leucoma. The leucocytes of the granulation tissue disappear for the most part but much persists for a long time, thus the explanation of the improvement of a leucoma for six months after the accident.

Staphyloma following a perforating ulcer as in ophthalmia neonatorum forms a protuberant cicatrix from a prolapse of the iris. The primary protrusion occurs at the moment of prolapse of the iris. Cicatrization follows and in the case of small prolapse may lead to flattening of the scar, but if large at all the contraction of the scar tis-

sue is insufficient to bring this about and the soft cicatrix yields to the normal intra ocular tension. Generally the prolapse leads to blocking of the angle of the anterior chamber and increased tension arises or this may occur later causing secondary protrusion.

Intact epithelium offers a great obstacle to the invasion of the cornea by almost every organism which occurs in the conjunctival sac. The gonococcus is the principal exception and even here it must remain in contact for some time unless an injury to the epithelium has happened. This happens after the installation of cocaine over any lengthy period. Here the epithelium becomes opaque and dull and is finally thrown off. This shows the great importance of keeping the epithelium intact after injury thus preventing many germs from attacking the corneal substance.

In the every dry corneal ulcer there is a localized necrosis in the most anterior layers of the cornea. The sequestrum is partly disintegrated and cast off into the conjunctival sac and partly adheres to the surface of the ulcer. Usually the epithelium is destroyed and cast off over a larger area than the ulcer itself and may also destroy more or less of Bowman's membrane.

The epithelium, however, rapidly advances towards the ulcer, grows over its edge and even penetrates more or less deeply between the separated lamellæ of the substantia. It may even grow over the slough and purulent lymph which covers the floor of the ulcer and may form regular cylindrical basement cells reposing on this purulent matter or it may grow over a blood clot as we see following operation for mastoid. This epithelium of course sloughs off with the purulent material. When the lamellæ are separated by these cells growing between them they swell considerably so that the margin of the ulcer projects above the surface of the cornea. This appears as a gray zone around the ulcer. When the dead material is thrown off the ulcer appears larger than before, but the cloudiness has disappeared the base and edges are smooth and transparent and the ulcer is on the road to recovery. Meanwhile blood vessels appear and cicatrization now commences. This occurs exactly in the same way as in the healing of corneal wounds.

According to Fuchs the earliest stage of ulcer-serpens is a dense infiltration of the superficial lamellæ in about the centre of the corner. The lamellæ over the infiltrate swell up and exfoliate, so that a flat open ulcer is formed, the floor of which consists of fibres which have been heaved up, and are swollen into an almost homogeneous mass, amongst which are sparsely scattered pus corpuscles. The infiltrate can be distinguished from the small portion of the cornea surrounding the ulcer. This is the yellow advancing border



it keeps insinuating itself farther and farther between the lamellæ, first to lift them up and then detach the superficial layers

Bowman's membrane is destroyed over the ulcer, often being split up for a considerable distance beyond. The middle layers of the cornea are least infiltrated, but increase as Descemet's membrane is approached so that a definite posterior infiltrate, or so-called posterior abscess is formed. Elsching claims that early perforation of Descemet's membrane is a conspicuous feature of *ulcus serpens* and that it is due to attacks from behind. Others believe that the leucocytes are derived from the peripheral vessels and attack Descemet's membrane from the anterior surface. This seems to me more likely as ordinarily the material in hypopyon is sterile and it is quite decided that it is produced from leucocytes derived from blood vessels of the ciliary body and iris. A hypopyon is really due to the action of toxins circulating in the tissues of these vessels.

As to bacteriology of different corneal ulcers, in the majority of cases *ulcus serpens* is caused by the pneumococcus, 50% of cases giving pure cultures, 15% of cases, with other organisms combined, and 25% other germs only, and a few cases no germs. This is according to Parsons. The other germs acting are gonococcus, staphylococcus and streptococcus. The germs found in most other ulcers are of the following: Morax-Axenfeld diplo-bacillus found in marginal ulcers generally not meaning that all marginal ulcers are due to this germ, streptococcus and staphylococcus, gonococcus and diphtheria bacillus are common. Some other germs have been found as *Petit's* bacillus and the bacillus duplex non-liquefaciens. These latter occur in central corneal ulcers according to Scarlett and are difficult to heal.

As to treatment, outside of definitely recognized specific treatments as zinc salts for the Morax-Axenfeld diplo-bacillus, there are about as many treatments as oculists. However, Hansell and others claim optochin as a specific for pneumococcus ulcers especially of the serpiginous types. As I have only seen three of these cases to my knowledge, one fatal so far as the eye was concerned and all happening before I knew of this remedy, I have no personal experience. I believe Dr. Bennett claims for it great power, though searching through the literature I find that the general opinion of those writing the articles is against it, except in ulcers caused by the pneumococcus.

Those of the staph and streptococcus types, and these germs cause the largest number of cases we see in every day practice, one drachm of iodoform to one ounce of castor oil stands me in good stead. I use tri-kresol to cauterize the ulcer if at all bad or likely to become bad and like this better than any other method. I

use the hot cautery, too. This is followed with atropine if need be, along with the iodoform and castor oil, adding holocain to this mixture for relief of pain. I believe that especially in those ulcers of the phlyctenular type we should use the calomel in the stomach and the castor oil in the eye rather than vice-versa, or, in other words use the mildest treatment that will cure the case. My rule of treatment is first, cocaine, then tri-kresol, or heat cautery, then iodoform, which may need to be changed to something else, and following this with hot water bathing, never cold, and in case of the phlyctenular ulcer in addition calomel every other day internally followed by a laxative and rearranging the diet. Tri-kresol is an analgesic. I cover the eye after the cauterizing to as far as possible overcome the effect of the cocaine. Dr. Beard of Chicago told me once that bandaging was the best treatment for ulcers.

In the gonococcus infections argyrol and silver nitrate combined, one to two grains of the latter and fifteen to thirty of the former in one ounce of distilled water, gives the best satisfaction. Silver nitrate added in this way seems to greatly add to the benefit of the argyrol.

Someone may think of the tuberculosis ulcer especially in phlyctenular conjunctivitis. I do not believe such a thing often exists because they get well too quickly. I have only seen two cases that I have reason to believe were really tubercular ulcers, one a driver of a laundry wagon who afterward died with tuberculosis and in consultation with Dr. Hubbel, he thought it was probably tubercular. The other in a young Indian whose mother had the disease in her lungs and after long treatment by various methods without result I gave the von Pirquet test on his arm, with a violent reaction following which the ulcer very promptly healed without further treatment. Neither of these cases were of the typical ulcer type.

I wish to say you can cause a hypopyon by severe treatment and hence it is my opinion the mildest treatment is always the best. Such treatments as Dr. Verhoeff of Boston gives, to me is out of the question. I have used the hot iron held near the ulcer and hot air, neither of which seem to have obtained my faith like the treatment outlined, for the every day ulcer that comes in the office, generally in the eye of the mechanic or laborer. In the chronic ulcers, or to clear up scar tissue I make free use of yellow oxide and dionin, always using the latter in powder form.

NOTE.—I have drawn from Fuchs, de Schweinitz, Ball, Wood and others, but principally from Parsons.

## PSYCHONEUROSES OF WAR \*

By CHARLES R. PAYNE, M D

WADHAMS N 1

ONE of the striking phenomena of the recent war from a medical point of view was the immense number of casualties caused by neuroses and psychoneuroses. Final statistics have not yet been compiled but it is established that a very high percentage of the total casualties were due to disturbances of the nervous system of various kinds but practically all alike in being functional rather than organic. Before the war these maladies had been generally supposed to belong more particularly to the female sex, as the original derivation of the term "hysteria," from the Greek word signifying "womb," shows but the experience of all the nations involved in the Great War demonstrates that men under suitable circumstances are quite as susceptible of developing a psychoneurosis as women.

In fact so unprepared for such an outbreak of nervous disturbances among the troops was the British Army Medical Corps that at the beginning of the conflict the British hospitals were literally flooded with patients of this kind. It took many months for the British to develop a proper method of handling this class of case.

Fortunately for us when we entered the war in 1917 we had the experience of our Allies from which to start, and by the psychiatric examinations instituted at the cantonments much potential neurotic material was weeded out during the period of training. Still in spite of this foresight, our army had its share of casualties of a psychoneurotic nature and it may be worth our while to spend a few minutes considering what were the causes leading up to such a frequency of these diseases and what lessons of value for our peacetime practice we may learn from the experience gained in the war.

Two developments of the present art of war seem to have been mainly responsible for the great increase in neurotic cases. (1) trench warfare, (2) the prodigious use of high explosive shells and bombs. MacCurdy has well summarized these etiological factors. "In previous wars," he says, "the soldiers were called upon to suffer fatigue and expose themselves to great danger. In return however they were compensated by the excitement of more active operations, the more frequent possibility of gaining some satisfaction in active hand to hand fighting where they might feel the joy of personal prowess. Now, the soldier must remain for days, weeks, even months in a narrow trench or stuffy dugout, exposed to a constant danger of the

most fearful kind, namely, bombardment with high explosive shells, which come from some unseen source, and against which no personal agility or wit is of any avail. This naturally occasions great fatigue, and on the other hand opportunities of active hand to hand fighting are rare so that a man may be exposed for months to the appalling effects of bombardment and never once have a chance to retaliate in a personal way. Consequently the sublimations are more difficult to maintain than in any previous war. The soldier becomes fatigued and not unnaturally finds it difficult to remain satisfied with his situation. His adaptation to warfare is, therefore, soon weakened or lost. His disregard of the carnage and death around him is gone and he becomes every day more acutely sensitive to the horrors which surround him."

"The bonds uniting him to the common cause become definitely loosened and his individual feelings begin to assert themselves. Accidents to which he was previously liable, but to which he was indifferent, are now viewed with apprehension. He becomes fearful of the dangers opposing him so that his courage is no longer automatic but forced. According as he has high or low ideals is more or less intelligent, he feels a shame before his fellows as a coward or feels ill treated by his superiors in being forced to continue fighting. His feeling of cowardice may lead to superhuman efforts of self-control, but these lead only to cumulative increase of his fatigue. Naturally he grows mentally and nervously more and more unstable but is prevented from leaving the line, either by his superior officers or by his own shame at the thought of 'going sick,' which is frequently looked upon as a sign of weakness. Those of lesser intelligence often regard their terrors as indications of approaching insanity and thus another worry is added to the strains under which they suffer. Once a man had acquired this unhappy condition, any trifling accident such as a mild concussion from an exploding shell, or some particularly unpleasant experience, may cause a final break and lead to such an exaggeration of symptoms already present that he becomes totally incompetent. It is not unnatural that anyone in this situation should look for some relief and unconsciously at least, this must be a powerful factor in the production of disabling symptoms. In many cases after more or less of these prodromal difficulties, symptoms appear that seem to be specifically directed against the man's capacity to fight."

Another factor which probably played a part in the causation of so many neuroses was the circumstance that the armies opposed to Ger-

\* Read before the Fourth District Branch of the Medical Society of the State of New York at Plattsburg November 18 1919

many and her Allies were largely drawn from civilian life and rushed to the front too rapidly to allow the men to become adjusted to the hard life of a soldier. And many recruits were taken who lacked in varying degrees the physical and mental constitutions necessary to stand the strain of warfare.

The symptomatology I shall pass over, since it is familiar to all of you. Suffice it to say that every previously described symptom of hysteria, neurasthenia, psychasthenia, anxiety neurosis and obsessional neurosis was duplicated many times over.

The methods used in treating the psychoneuroses of war were almost all founded on *suggestion*. The application varied with different workers and with the type of individual affected. In an intelligent patient who had a good constitutional make-up and a genuine desire to get well, simple explanation of the psychology of his case was often sufficient. With ignorant patients, electricity was much employed mostly for its suggestive effect. Strict discipline was found to be far more beneficial than too much coddling. Some medical officers carried this to the extreme of harshness or even cruelty, but the general consensus of opinion is that firmness without overbearing harshness was more effectual.

Rest, proper feeding and other hygienic measures were of course used as indicated. In many cases, fatigue seems to have been an important factor in precipitating the neurosis, in such cases rest was often the main thing needed. All who succeeded in treating these cases emphasize the necessity of hospitals where the psychoneuroses are understood and where an air of optimism prevails, and of physicians who comprehend the mental mechanisms involved and can use suggestion effectively. In a word, psychotherapy is stressed by the men who dealt with psychoneurotics by the thousand as the only effective method of therapy and this applies not to any one nationality, but to all of the great nations engaged.

During the war with its demand for speed in all things, the aim was to get the man back to duty as quickly as possible. Hypnotism was tried by a few workers, apparently with beneficial results, but its use never became general.

At the hospitals at home to which the severest and most intractable cases were sent, re-education, occupation therapy and psychoanalysis were employed. All of these methods are of value when time is available for their application.

As we read the reports of different medical workers concerning their success in treating these cases, we are struck by the wide divergence of results reported. For instance, Dr. Arthur F. Hurst, one of the prominent English medical officers in this field, reports that the great ma-

jority of his cases of war hysteria yielded promptly to psychotherapy. He further states that his form of psychotherapy consisted in explaining the functional mental origin of the symptoms to the patient in language suited to the intelligence of the individual, combined when necessary with persuasion and re-education. American workers with the army abroad also report success in getting the majority of their psychoneurotic patients back to duty. Such results are quite at variance with results obtained at General Hospital No. 30, Plattsburgh Barracks, where we often found much difficulty in curing such patients. The difference is undoubtedly due to the difference in individuals treated. Only the most refractory cases were sent back to the United States from France, and these were, with few exceptions, men of poor constitutional make-up.

Turning now to a comparison of the psychoneuroses of war with those of peacetime we note that the psychoneuroses of peacetime are usually the result of mental conflicts between repressed instinctive tendencies and the demands of civilized life. The instinct most often involved is the sexual. In the psychoneuroses of war, however, we find that the conflict is usually between the soldier's ego instincts (particularly that of self-preservation) and the demands of military service. The soldier feels bound by duty and patriotism to submit to severe military discipline, to undergo privation and hardship, to face great danger and often to sacrifice himself. But all of this action is in direct opposition to the demands of the instinct of self-preservation. There comes a time when the conflict between these two sets of mental forces becomes more than the individual can stand. This moment may be hastened by fatigue, insufficient food, lack of sleep, etc., and it will come sooner for predisposed individuals than for the robust and mentally strong, but under the terrific strain of modern warfare, with its deluge of high explosive shells and bombs from the sky, it may come to the strongest for there is a limit to human endurance. When this breaking point is reached, we have typical cases of war neuroses and psychoneuroses, according as symptoms are more in the physical or mental spheres. Unconsciousness which usually ushers in the malady is a flight from reality, a release if only temporary from the mental torture which had become too much for the individual. With the predisposed and weak individual it may take very little hardship to bring on the malady.

In peacetime, however, as mentioned above, the mental conflict causing the psychoneurosis does not usually involve the instinct of self-preservation, but rather some part of the instinct of race-propagation, that is, the sexual instinct. For this reason the repressions are much deeper and more concealed and the symptoms correspondingly harder to eradicate. These symptoms

will not, therefore yield readily to treatment as did those of the war neuroses which were founded on more superficial conflicts. Hence more time and more refined methods of treatment will be required to restore the psychoneurotics of pericetum to health.

In considering patients suffering from psychoneuroses we must in every case consider the individual, his particular character make up what he wants to do whether there is an honest desire to get well whether the symptoms provide an excuse for not doing disagreeable tasks or securing advantages from the family or environment. As Freud long ago pointed out for a patient to be cured of a psychoneurosis the discomfort caused by the symptoms must be greater than the benefits gained by keeping the symptoms (such as release from work being nursed, special privileges attention etc.)

The two chief lessons which the war has brought forcibly to our attention and demonstrated beyond the possibility of contradiction are (1) the psychogenesis of the psychoneuroses that is that functional mental and nervous symptoms spring from mental causes, and (2) the effectiveness of psychotherapy in curing the psychoneuroses. The British medical profession at the beginning of the war was loath to admit that psychotherapy was of value, but their attempts to cure the immense numbers of psychoneurotics in their general hospitals by the older methods of treatment soon convinced them of their error so that now some of the strongest exponents of psychotherapy are the British medical officers who handled psychoneurotic patients. If anyone doubts these statements he has only to read some of the voluminous literature which has already appeared written by medical men of all the nations engaged to be convinced of their validity.

Man is more than a collection of organs, he is a biologic unit and if we would understand him and his often curious manifestations as seen in the psychoneuroses we must study him as a whole and in relation to his environment. In this study we must ask how well is he utilizing the instinctive forces which he has inherited from thousands of generations of ancestors in solving his present day problems how does he react to the complex demands of modern civilized life how many of the crude childish modes of reaction does he carry over into the adult period has he an honest desire to be cured. These and other questions we must answer if we would effectually aid our psychoneurotic patients. We must understand what their symptoms mean, what they are striving to do what their mental conflicts are. And we must not merely have this understanding ourselves but we must be able to transmit it to our patients in such a way that they may use their will power to harmonize their minds.

## MEDICAL EDUCATION \*

By EDGAR A VANDER VEER, M.D.,

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THE subject of Medical Education, with the issues growing out of it, public health insurance public health centers, small hospitals, ranging in size from four to twenty beds, is a problem that I believe should be discussed by County Medical Societies in an endeavor to see if some more practical solution to the problem cannot be worked out.

Certain facts in the case are self evident. The number of medical students as well as the medical schools themselves have decreased markedly in the last fifteen years and that it is altogether a good thing for the medical profession and the public at large has not yet been definitely determined. We hear over and over again the question asked. What has become of the good old family physician, why is he passing away?

Is it because methods of living have changed and relations between families and their doctor have become less confidential than in former years? Partly so but more I believe because the study of medicine has been made so difficult expensive and time consuming that the men from whom the class of the so-called family physician and country doctor is recruited have neither the time nor money to enter the medical profession for which they have a liking and in consequence, take up other callings that while no more lucrative or dignified, still offer them the opportunity to sooner establish themselves on an income financial basis.

In the years past a promising young man from the farm, or engaged in other occupations, could after graduating from the high school enter upon his medical studies. He came from the farm, knew the hardships of country life, but he loved the country and the people and was only too glad to go back and serve them. But now all this has changed. A young man on the farm or in some similar calling cannot afford to study medicine. When he thinks about it, if he considers it at all, he is appalled by the time and expense it entails and takes up some other form of occupation. Up to within a short period a high school diploma has been looked upon as the minimum of premedical studies but it has been shown that an additional study in physics and biology with organic chemistry has become very essential. Hence two years of additional work in a college of arts and science has been deemed necessary. Now when the young man has by great effort of self and family pursued these additional requirements and if he concludes to study medicine then he feels he has spent so much on obtaining his education that he must settle in a city and become a specialist with

the prospect of more lucrative fees in order to compensate him for the financial outlay which he has made, to say nothing of the age at which he is beginning to take up his life work. I believe that this, in a very large measure, accounts for the dearth of physicians in the country districts rather than the disinclination of the physicians to suffer the hardships of a country practice.

He must have his high school graduate work, that cannot be denied. The additional two years in a college of arts and sciences, will bear further thought and careful analysis. If the high school course of instruction could be strengthened in physics and biology, carrying organic chemistry into the first year of medical studies, this might prepare the way by absorbing the first year in college, then, taking the second year as a fifth year study for the medical student, in passing it in a properly recognized hospital, where clinical teaching had been developed satisfactorily and the candidate not to receive his diploma from the medical college from which he is to graduate, until he has a certificate stating he possessed the hospital training. This man cannot be expected to retain all the niceties and technique and care of instruments and appliances in the examination of blood, the sputum, the secretions from the urinary and alimentary tracts. Now, I do not wish to be understood that he must not have been required to become competent in all this professional work but is it not possible to rearrange his time so that he need not take all this technical work? It is very desirable that there be no lessening of the studies required at the present time by the medical student, but, if there could be a condensation if there could be a letting up of some of the non-essentials, giving him the practical points needed when entering into practice, and lessening the period of his education one or two years it would seem very wise. Unquestionably there is much in the technique of bacteriological instruction that can never be carried out by the active practitioner. He must either employ an assistant or take advantage of some of the properly equipped laboratories such as have already been established in some parts of the State with or without small hospitals and to which I will refer later, in order to look after his patients, who will claim his time, as a busy physician, and to do them justice in keeping abreast of what is necessary in the use of advanced mechanical and therapeutical methods, and for the further pursuance of his keeping abreast of his current medical studies. Take up any of our medical journals and carefully consider how much is required of the physician to keep in touch with the medical progress of the times, new classification of diseases now and then (a new form of disease quite entirely different in its symptoms from anything in the past, together with advanced methods of treatment).

From this suggested condensing, and elaborating somewhat more the studies that enter into the preparation of the medical student, and as it applies to our high schools, I offer for consideration, could we not work out a minimum medical education that would supply the vacancies that are now developing in the out-of-the-way places of country practice? We must not deny that the smallest hamlet has the right to demand the best the State can afford, but it is not always possible for the best to remain in such localities, owing to inadequate remuneration, which is well understood when they have in mind beginning the study of medicine.

It has been stated in one of the early reports of the Carnegie Foundation Fund that the well-prepared and advanced practitioner is to be found in these obscure places, but a careful study of the census shows very few men from the Johns Hopkins and other like institutions. It is a mighty small fractional part of the makeup of the members of the medical profession who are to be found in these out-of-the-way places. Vacancies are occurring frequently. I would not have what I have presented in these suggestions interfere with the fortunate young man who is able to take the full four years in a college of arts together with the medical studies of to-day.

Some few years ago, in a discussion on this subject, it was endeavored to bring out a combined course for the baccalaureate and medical degrees, consolidating them in a six or seven years' course of study in universities that were prepared to follow this line of education. A few of the universities are yet pursuing this line of instruction, but it is not quite universally received with an approbation that seems to be encouraging.

Is it not a fact, and is it not a plain statement of the truth that graduates of our high schools in past years, especially those who have had advanced instruction in physics and biology, afterwards taking a four years' course in medicine, with a fifth year in hospital work, have made excellent practitioners, also is there not a record of the latter obtaining a well recognized eminence in their profession, continuing to practice with an encouragement from the public that is entirely satisfactory to both doctor and patient and embodying much of the old time family physician and methods?

If the student could enter a school of medicine direct from the high school without the necessity of two years in a college of arts, though it would require more intense study, and which these earnest young men would willingly render, I believe that more young men would be glad to take up the profession, that they would make good physicians, and that the public, instead of

suffering by so doing, would be greatly benefited. The statement is made that it takes two years of college education in order to train a young man properly how to study but surely is not this the function of the high school? It ought to be that a young man contemplating the study of medicine could enter a medical college and obtain the degree of M.D. in the same length of time that a young man can obtain the degree of L.B.S. I mean as relatively an important preparation ought to be secured for the one as for the other degree.

Of course everybody will agree that the more highly educated a physician is the better physician he should be, but in the final analysis it comes very largely to the individual equation and the man himself. Would it not be better to spend the time on the other end of the medical education there to encourage those medical students who show special aptitude to spend two or three years in post-graduate medical work and let them become the consultants, diagnosticians, laboratory workers and specialists rather than to compel the whole medical student body to take up with special lines of medical work which may be distasteful to them and for which they have no special aptitude.

I still am firmly of the opinion that for a man to become a specialist in any line of medicine he should have at least five years' experience as a general practitioner. Nothing so enables a specialist to approach a case in a spirit of broad-mindedness as the fact that he has been in general practice, and knows that a patient can have some disease outside of his own specialty. The same applies in surgery. I do not believe that a student should be allowed to graduate from a medical school one day, and the next day, or as soon as he has obtained his State license, be permitted to perform a major operation. But at the present time there is nothing to prevent it, and the public are bound to suffer in the end. To be sure the American College of Surgeons are doing all they can to remedy this and to educate the public to the gravity of the situation, but it is a slow process, and the public do not seem to show much enthusiasm in being educated. Now, if the two years which the student spends in the college of arts could be taken away from that end and added to the other end, and the student be compelled to spend these two years in the study of surgery with some good accredited hospital surgeon before he was given his degree in surgery and allowed to operate the public would be protected less poor surgery would be done and the whole tone of surgery would be elevated.

I believe that half of the agitation to-day for public health insurance, public health centers, public diagnostic clinics, is due to the lack of the good old fashioned physician or country doctor, and this agitation will never be stopped till we have some reform in our medical education by which it can be made, not easier, but more advantageous in the saving of time and money to enter the medical profession. People seem to die in about the same degree of regularity and with the same diseases as they always did before the present form of medical education went into effect. The mortality rate to-day may as a whole be decreased somewhat, due I am told in a large measure to the decrease in the infant mortality rate. If they live to grow up to be weaklings and a charge on the State, then from a purely economic proposition, to say nothing from a humanitarian point of view, there is room for argument on the subject. Nature's law, the survival of the fittest, still holds good.

Chiropractors and other cults are flourishing, in part due to the absence of enough of the kind of common sense, all around physicians such as the medical schools formerly graduated, but who now have largely passed away. Men who knew something of the hardships of life before they entered the medical profession, and who entered it as much for the love of it as for any large financial gain which it might bring, men who were actuated largely by the 'milk of human kindness.

Most men who enter the medical colleges do not expect to be professors in this or that branch of medicine, but I believe that is the tendency of present day medical education. Men are taught the refinements of medicine largely at the expense of the essential things. Has not the pendulum swung too largely from the side of too little education to that of too much education and isn't it about time that it swings back to a happy medium?

Medicine can never be an exact science, never a science by education or in any other way. Medicine is an art, and always will be one and if we shut out of it a certain class of young men who have studied human nature in the school of experience because of the length of time and the cost that it would take before they receive a license to practice we are depriving the public of more benefits than are obtained by too high premedical requirements. Small localities will become dissatisfied. It will tend to develop irregulars and fakirs.

## SYPHILIS IN CHILDREN OF SCHOOL AGE WITH HEART DISEASE<sup>1</sup>

By BLAKE F DONALDSON, M.D.,

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**D**URING the last school year 28,000 children were on register in a district of seventeen schools—located in New York's lower East Side—assigned to the cardiac clinic of Post Graduate Hospital. All of the new children in these schools, together with such of the other children as were suspected of having diseases of any kind, were examined by school Medical Inspectors from the Department of Health. Seven hundred were thought worthy of note because of some cardiac abnormality. These selected cases were then passed upon by Dr Robert Halsey and a staff of assistants.

It was considered that 167 of these cases had organic heart disease—forceful sounds, reduplications, high pulse rates, and accidental murmurs accounting for the rest.

The Department of Health of the City of New York<sup>1</sup> reports that the incidence of heart disease among school children, as noted by its medical inspection in 1918, is 1.6 per cent.

Priestly<sup>2</sup> reports that the number of cases which a staff of inspectors experienced in the work but not making a special research into minor heart symptoms, thought worthy of note in a number approximating seventy thousand British school children, averaged 6.6 per cent. The total amount of genuine organic valvular diseases seemed to be only 1 per cent, and of this group of 676 apparently genuine organic cases, only 7, or 1 per cent were considered to have aortic insufficiency.

In our group of 167 organic cases, there were thirteen cases of aortic insufficiency, and five of pulmonic insufficiency in combination with either mitral stenosis or mitral insufficiency.

Eighty-four of these children were selected for medical observation in a special class connected with P. S. 64. The work was in the nature of an experiment to determine the wisdom of segregating school children with heart disease.

The comparatively large number of aortic cases (8 per cent) in our series was rather a surprise. Blood pressures were taken routinely—the children examined in both erect and prone positions—pulse tracings, electrocardiograms and fluoroscopic examinations were made as indicated. In the aortic cases the diastolic murmurs were best made out with the patients in the erect position after forced expiration. In all instances the murmur could be heard with the stethoscope.

One hundred and three Wassermann reactions were made on the 84 children registered, and on the mothers and any available relatives of the children with aortic insufficiency.

A positive Wassermann was obtained in only one child. This was a well compensated case of aortic insufficiency with a history of frequent attacks of tonsillitis and one severe attack of rheumatic fever. His father could not be located. His mother's reaction was also four plus. Like the child, she was overweight and apparently in very good general physical condition. Neither the mother nor the child showed any other evidence of syphilis. In view of the child's good general condition, anti-syphilitic treatment has not as yet been instituted.

No luetin reactions nor provocative injections were made on these cases. The family history in every case of aortic insufficiency was very thoroughly gone into.

The investigation of one case of potential heart disease—a child with a marked anæmia of the pernicious type—with a high color index and many nucleated red cells, a marked enlargement of the spleen and liver, and slight generalized icterus, was very interesting.

Out of a family of eleven people, eight members were affected in almost the same manner. They all had the primary type of anæmia, with splenic enlargement—some members of the family having been under observation in various hospitals and clinics for the last five years.

The Wassermann reactions were performed by Dr Sheplar, the serologist of the New York Post-Graduate Hospital. The beef heart, plain antigen, incubator, refrigerator method, with an eighteen-hour incubator period, was used.

The aortic cases all had definite histories of acute rheumatic fever, save for one who had only had diphtheria.

In children we expect to find aortic disease as the consequence of rheumatism, syphilis, or some extraordinary muscular strain. In late years, perhaps because of improved diagnostic methods, syphilis as a causative factor, has, especially in children, been over-emphasized. Allbutt<sup>3</sup> states that by far the chief cause of aortic disease in persons under middle age, is rheumatic fever.

Poynton, Aggazzis and Taylor<sup>4</sup> in reporting 250 autopsies of children who died of rheumatism, classified the cardiac lesions as noted as follows:

The mitral valve was involved in 247 out of 250 cases.

The aortic valve was involved in 102 out of 250 cases.

The tricuspid valve was involved in 78 out of 250 cases.

The pulmonary valve was involved in 6 out of 250 cases.

In their series there were 102 examples of that combined aortic and mitral lesion which is of so much interest and importance in the history of cardiac rheumatism.

Warthin<sup>5</sup> has demonstrated that the pulmonary artery can be severely damaged by a syphilitic

<sup>1</sup> Read before the Section of Pediatrics, New York Academy of Medicine, October 8, 1920.

infection. We had no reason to suspect that the five cases of pulmonic insufficiency noted in our cases were anything other than the ordinary condition seen secondary to old rheumatic affection of the mitral orifice.

#### CONCLUSION

It would seem in this limited number of cases that syphilis is not a very great factor in the causation of heart disease in children.

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### "ACUTE MASTOIDITIS IN THE AGED"

By TRUMAN LAURANCE SAUNDERS, M.D.  
NEW YORK CITY

THE problem of acute otitis and mastoiditis in patients who have reached the allotted "three score years and ten" is often a difficult one, and the writer ventures to report a case in private practice, with the hope that the facts gained from its narration may be of help to others.

Dr X a retired physician had an attack of mastoiditis on the left side at the age of 70 years. He was operated upon, six (6) years later the right side was the seat of a severe mastoiditis, this was operated upon with recovery. First attack occurred six years ago. The patient, a vigorous man of seventy, experienced a severe attack of pain in the left ear, following a slight cold. He was seen by the writer three hours after onset of this pain who found a red and bulging drum. This was immediately incised under nitrous oxide anesthesia.

In spite of repeated incisions the pain in the ear did not cease. The discharge at first serous in character, gradually became purulent. The bulging in the ear persisted. A smear of the purulent discharge was examined and was found to contain streptococcus capsulatus and a staphylococcus. There was no mastoid tenderness but the patient complained of paroxysmal attacks of pain radiating from the ear to the top of the head and to the forehead. The temperature ran from 99 to 100. Operation was advised on about the sixteenth day of the disease but refused by the patient.

On the forty sixth (46th) day of the disease the patient was persuaded to have an operation on account of the severe pain in the head. There was no tenderness and the temperature still remained between 99 and 100.

The same day the author operated at the Presbyterian Hospital. Dr Gorham Bacon and Dr Joseph A. Blake were present in consultation and Dr George Creevey skillfully administered the anesthetic, gas and ether. Upon removing the mastoid cortex, which was extremely hard and thick, accounting for the lack of tenderness the entire mastoid cavity was found broken down and filled with pus and granulations. There was a large perisinous and epidural abscess and anterior to the sinus there was a necrotic area of cerebellar dura the size of a ten cent piece and in the center of this necrotic area a minute perforation from which was coming clear cerebro spinal fluid. The operation consumed about two hours.

A gloomy prognosis was given to the family on account of the dural perforation. The dressings were saturated with cerebro spinal fluid for about ten days. The patient recovered from this operation with a dry ear and healed mastoid in about two months.

The patient remained well with the exception of an attack of acute otitis on the right side, when he did not come under my care. This fall six years after the first operation following a rather severe infection of his nose and throat lasting about ten days, he was seized with a pain in his right ear. Notwithstanding his previous experience, I was not summoned until twenty-four (24) hours had elapsed, when I incised the right drum under nitrous oxide anesthesia. The process was chiefly confined to Shrapnell's membrane. On account of the unsatisfactory progress of the case the drum was removed on the seventh (7th) day. I soon realized that I was dealing with a pathological process similar to that which had occurred in the other ear six (6) years previously. I hesitated to operate on account of the extreme age, seventy six (76), although he was in good general condition. Dr C. G. Coakley was good enough to see the case with me. He thought that the patient would probably come to operation and advised his removal to the New York Eye and Ear Infirmary, where he could be watched more closely. On about the sixteenth (16th) day of his disease Dr S. J. Crowe, of Baltimore, agreed with me that notwithstanding his advanced years his mastoid should be opened.

Dr Crowe was present at the operation and Dr Creevey again gave the anesthetic gas and ether. The mastoid cavity was broken down and a large perisinous abscess uncovered. The time of the operation was one hour and forty five minutes. A pure culture of streptococcus capsulatus was recovered from the mastoid pus. The wound was packed with iodoform gauze and sutured for its upper half.

His convalescence was characterized by entire freedom from pain. At the end of the sixth day the gauze packings were discontinued and the

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City March 24 1920



cavity filled with "Bip" paste (Bismuth, 1 part, iodoform, 2 parts, petrolatum, 12 parts)

He left the hospital at the end of two weeks, at the end of three weeks the mastoid was almost entirely healed, and the middle ear had cleared up

Five weeks after the operation he suffered from a slight attack of vertigo, unconsciousness and loss of memory, from which he has entirely recovered. He is now in good general health, with the mastoid wound healed and with good hearing in both ears. He has resumed his ordinary pursuits, and takes a long walk every day the weather permits

After a somewhat extended inquiry, this is the oldest case of mastoiditis that has come under the observation of the writer, and it is reported to show that in spite of advanced years the mastoid operation is well borne, provided the patient is in good general condition

The most interesting feature of the case is that the second mastoid healed more readily than the first, notwithstanding the fact that the patient was six years older

I think that the members present will agree with me that it is extremely hard luck to reach the age of seventy with little if any illness, and then be compelled to undergo two mastoid operations within a period of six years

## THE NURSING SITUATION

By W. GILMAN THOMPSON, M.D.,

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**W**HAT ails the nursing situation? It is generally admitted that the results of the present system of training nurses is in many ways unsatisfactory. The public are dissatisfied mainly because the prevailing charges for trained nurses are in many cases beyond their means. Physicians are dissatisfied because of the increasing difficulty of obtaining adequate service for their patients and the type of women who formerly were attracted to the nursing vocation are dissatisfied for several reasons, economic and otherwise

In what might be termed the immediate Nightingale era of nursing, the dominant idea was to render a humanitarian service to the sick and suffering, often at considerable personal sacrifice. The nurses' hours were long, involving always at least half a day, and frequently a continuous duty of twenty-four hours. The demands of the medical profession were relatively meagre. Antisepsis was just being developed by Mr. Lister, making of blood cultures, giving of salvarsan, nitrogen partitions and countless similar procedures now taking much time from the nurse as an aid were unheard of. The patient was still a sick human being, requiring relief of suffering, comfort in bed and motherly support, rather than a "case" for observation and diagnostic re-

search. (Enter, the attitude of the medical profession placing more and more responsibility upon the nurse)

Thereafter followed a second era of training school exploitation, in which many small hospitals felt the need of following the lead of the larger ones in establishing training schools, although in many instances they were ill equipped to give adequate instruction. Still later developed the third era, that of training school legislation, undertaken primarily to protect the trained nurse in her future work from encroachment upon this field of original humanitarian service by any who did not bear the hall mark of "R. N." After the manner of legislation once initiated, one controlling act followed another, until a climax was reached when a bill was introduced in one of our legislatures calling for a monopoly of the term "nurse," to be used only by those of legalized training, any attempt to permit the so-called "trained attendant" to obtain the advantages of a little hospital instruction, meanwhile being firmly resisted.

Then came the fourth era, or that of war nursing, which gave all training systems a terrific jolt, for it was soon found that, although trained nurses volunteered everywhere for service by thousands with splendid patriotism, their numbers were far inadequate and there was no considerable group of trained attendants in reserve to help meet the dire emergency. The pressure finally became so great from the Surgeon General's office, and the hospitals of the country became so depleted of nursing, that short intensive training was widely instituted, and even some of the hitherto most conservative hospitals opened their doors temporarily and more or less reluctantly for the trained attendant type.

This directed the attention of many persons to the fact, long since realized by the medical profession, that a young woman of ordinary ability and moderate education can be "trained" to make a very competent general nurse by intensive method, in far less time than the three years of many of the schools—most emphatically within two years. In fact the Commissioner of Health of Chicago has lately been training nurse attendants in a two months' intensive course, and in a recent issue of the *American Journal of Public Health* he claims to have had great success with more than 4,000 pupils. This doubtless is somewhat extreme, but I know that it can be done in three months very satisfactorily, with competent pupils and competent teachers. Some years ago, when it became customary to give intensive training in the elements of nursing to "probationers" before assigning them to definite ward duty in schools having a three years' course. I suggested in a school in which I was much interested (having taken an active part in its original foundation), that the probationers, who had been studying for three months before going on

ward duty, be made to give an exhibition of their work in public at the hospital, a custom which, by the way, subsequently was widely copied elsewhere. After witnessing the exhibition, which comprised all varieties of bed adjustments, all manner of bandaging, making of poultices and plasters, making and recording records, adjusting croup kettles, giving hot packs, washing young infants, etc., one of my colleagues of the Visiting Staff, who stammered a bit, said to the Superintendent of the School "Why, Miss X, er-er what is left for all these er-er young women to learn in the rest of their er-three years?"—which heartless remark was received with marked disdain!

In not a few instances women trained by shorter courses have proved more satisfactory than the highly overtrained nurse who often becomes restless with simple or chronic cases feeling not unnaturally, that having been taught all kinds of things, from electrocardiography to voice culture she ought to be turning her instruction to more practical account. Take the sphenoid bone, for example, that *pons asinorum* of all medical students. Having been taught all about the sphenoid bone at the outset of a three years' course of "training," how disappointing it must be to be called upon to nurse a case of, say chronic bronchitis and never even get a look at it! This recalls the dog who used to run out daily and chase an express train that went rushing past his master's door, who boasted of his dog's interest and speed, until some unappreciative person asked "What could the dog do with it when he had caught it?" That the sphenoid illustration is no exaggeration is proven by the fact that a young woman who recently was a probationer in a training school of very high standing brought to show me the text-book of anatomy which her class was obliged to study (one which might well serve for students in a medical college), and her next lesson included a description of the sphenoid which was reproduced in a large illustration. This same young woman, having been less than a week in the school was asked to learn whether there is any chloride of sodium in the teeth! To grin time while I looked up this 'poser' in my library, I suggested that I had heard of its use as a means of catching wild birds—but of course birds have no teeth!

Finally we have reached the fifth era, or what is more strikingly the economic period than any others which concerns the questions of supply and demand—of the real economic need of the country at large for adequate nursing. This condition may briefly be summarized as follows. The war took many nurses out of the country, many of these became so unsettled that they did not care to re-enter the field of private nursing on returning which their wider experience and more quickly gained knowledge made appear restricted and undesirable. (In not a few instances

surgeons found themselves similarly unsettled.) The war greatly hastened what already was taking place namely, an enormous extension of the fields in which women may find gainful employment with comparatively brief previous training. It does not take three years to make a fairly good typist and stenographer provided she knows how to spell to start with. She can earn almost as much as the trained nurse—at least as much as the trained nurse used to earn before she became a luxury for the very rich only! She has shorter hours as a rule, although an eight-hour shift is being tried quite recently in a number of hospitals. In any event she has her evenings, Sundays and holidays free. She is subject to no rigid discipline during her 'off' hours. She can live at home see her friends freely, and go to such entertainments as she likes, with whom she likes, and as often as she likes, provided she does not get too sleepy to do her work accurately! The assumption is that she is old enough and responsible enough to take care of herself, whereas the attitude of the training school, as she regards it, is precisely that of a young girls' boarding school yet where women are taken only between the ages of twenty one and thirty-five. Why, she naturally asks herself should she give up her freedom at the period of life when all her young friends are most enjoying it, to live an institutional life beset by rules and regulations and spend three years studying about sphenoid bones and such things while she is earning nothing beyond her board and lodging? For her, at least, chloride of sodium has lost its savor! Is it any wonder that the training schools find it increasingly difficult to recruit their ranks? A friend had lately an interesting experience. He told me that he advertised for a young woman of a high-school grade of education to fill an office position in work not unrelated to nursing. Over one hundred eligible young women applied. Being himself deeply interested in nursing problems he asked each applicant whether she had not considered entering the field of nursing? A very large proportion of them answered substantially as I have stated the matter above.

A fundamental difficulty with the nursing situation is partly economic and partly pedagogic. In other words it is the inherent difficulty of trying to do two things successfully at once. For the interest of the nurse she should be permitted to learn all she needs in a reasonably short time, and go out to earn her living. After she has become proficient in any particular procedure it is, from her point of view, a waste of time to go on repeating it indefinitely. It is like reading over and over the same page of a book without turning to the next one. The training course is theoretically intended to give her progressive and all round experience, but the best interests of the hospital service often demand that she be kept longer at one set of tasks than she needs

In fact it quite often happens that she is graduated having failed completely to have any experience in certain important methods in which a more fortunate classmate may be instructed. This is in part a matter of adjustment in part a question of luck in the nature of the service at the moment. An epidemic of typhoid fever or of influenza, for example, may compel so much experience in medical care as to curtail opportunity for wider surgical training.

Another undesirable feature of present training school methods is the system of turning out all graduates with the same rubber stamp, so to speak, i. e., the most proficient nurse who has proven capable of being a first-class operating room nurse or even of taking charge of a nursing system in a small hospital, receives no more recognition of her attainments in her diploma than does the dullest nurse in the class who barely has managed to complete the course.

Much relief could be found by admitting a group of trained attendants to gain a moderate experience in hospital wards and relieve the regular hospital nurses from undue repetition of things they already know how to do, and further by giving the "R N" diploma to all nurses at the completion of a two years' course. Then a further certificate should be granted to those who desire to fit themselves either as "operating room head nurses," or to pursue additional courses in those special fields for which there is rapidly increasing demand for expert training, as, for example, public health nursing, industrial nursing, nursing of the insane and the tuberculous, child hygiene, nursing patients undergoing special research, nursing welfare work, etc. And finally, in every hospital in which nurses are instructed, the curriculum should be submitted to and under the direction of the medical staff for it is due very largely to the inertia of the medical profession that so much dissatisfaction with present methods exists. Training school superintendents, moreover, will find their task much easier if they will take a broadly comprehensive view of the entire existing economic situation, not alone from city but also country practice, and prepare to meet the constantly growing demands for facilities for specialized nursing services. It is poor policy to waste three years of most valuable time in teaching a woman many of the things she is now taught in a routine three years' course, when she intends, for example, to enter the well paid field of industrial nursing, and then graduate her only to go outside and pick up, as best she may by herself the information which should be obtainable in a brief elective course.

In summary, the present public and economic demand is for the following groups of nurses

1 Trained attendants having had a three months intensive course *partly in hospital*

*wards*, to take charge of simple cases or to act as trained nurses' helpers in more serious cases, and to serve those of moderate means

2 Graduate nurses, corresponding to the present "R N," having had a two years' training only, and capable of covering fully nine-tenths of the service required by those who can afford to pay for them

3 A group of nurses who have supplemented the "R N" two years' training by six months or a year of further intensive study in such special fields of work as those specified above, which they may elect to follow, and for completing which specialized studies they receive an additional certificate

Furthermore

(1) Training school life and discipline should be regulated with a view of making it more attractive to those who may be inclined to enter this field of service

(2) Physicians should take more active part in the control of the whole situation. If they do not get what they want they have none to blame but themselves

## Deaths.

BIERWIRTH, JULIUS C, Brooklyn, College of Physicians and Surgeons, New York, 1885, Fellow American Medical Association, Member State Society, New York Academy of Medicine. Died May 1, 1921

BREITENFELD, SIEGMUND, New York City, Prague, 1882, Fellow American Medical Association, Member State Society, Physician in charge Lenox Hill Hospital. Died April 28, 1921

BROWN, ROBERT MFRIDA, Saranac Lake, College of Physicians and Surgeons, New York, 1905, Fellow American Medical Association, Member State Society, Consurg St Bartholomew's Clinic, New York Surg General Hospital, Saranac Lake. Died April 30, 1921

COMMISSKEY, LEO JOHN JOSEPH, Brooklyn, College of Physicians and Surgeons of New York, 1904, Fellow American Medical Association, American College of Surgeons, Member State Society, Brooklyn Gynecological Society, Obstetrician and Gynecologist, Kings County and Bradford Street Hospitals, Brooklyn, and Mercy Hospital, Hempstead. Died April 15, 1921

CROWLEY, JAMES F, Batavia, Buffalo Medical College, 1885, Fellow American Medical Association, Member State Society, Physician City Hospital. Died March 20, 1921

ELLIS, GEORGE E, Dunkirk, University of Buffalo, 1891, Member State Society. Died March 14, 1921

HAINES, CHARLES CHANDLER, New York City, Long Island College Hospital, 1906, Fellow American Medical Association, Member State Society. Died April 12, 1921

KEPKE, JOHN, Brooklyn, Bellevue Medical College, 1890, Fellow American Medical Association, Member State Society, Consulting Laryngologist St Catherine's Hospital. Died May 1, 1921

ROMM, MAXIM D, New York City, Dorpat and Wurzburg, 1882, Member State Society, Visiting Physician Stuyvesant Polyclinic. Died April 22, 1921

## New York State Journal of Medicine

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street New York N Y

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## MALPRACTICE DEFENSE

CAREFUL consideration of the report of the legal Counsel of the Society, published in the pamphlet containing the annual report of Officers and Committee to the House of Delegates, demonstrates not only the increasing importance of this branch of the Society's activity and its mounting cost, but also, that in justice to all concerned, a change in the manner of compensation to legal Counsel is absolutely necessary to maintain the legal department at the highest point of efficiency.

In a supplemental report just read to the House of Delegates at the time of going to press, the legal Counsel has detailed a new scheme by means of which members may obtain indemnity insurance at much less cost than can be obtained by non members, and those who do not desire this insurance will be defended by the Society exactly as formerly. The additional advantage of the proposed insurance plan is, that members insured under this plan will also have their defense conducted by the Society and not by the insurance company. The following preamble was read to the House of Delegates and the resolution was unanimously adopted.

The details of this plan are in the hands of the Council of the State Society, and will probably be ready for publication in the next issue.

WHEREAS It is desirable to continue the benefit to our members of malpractice defense work to prevent the profession from being subject to unjust attack, and

WHEREAS, Through the defense plan of the Medical Society of the State of New York the members have had the co-operation of their fellow members and the defense of legal Counsel of the Society in the protection of their reputation and interest against unjust attack, and

WHEREAS, A large number of members of the Society desire in addition to the protection afforded by the malpractice defense indemnity against judgment or claim for which they may be answerable in law despite the use on their part of their best skill, care and judgment, and

WHEREAS Such an indemnity feature can be added to the benefit of the malpractice defense work of the said Society through proper arrangements with an insurance company at a reasonable rate and under conditions which will make available to the said Society's malpractice defense many elements of strength in the arrangement of the said insurance company, particularly in the investigation of claims and the separation of cases, and

WHEREAS The members who procure such an indemnity will not thereby lose any of their rights of participation in the malpractice defense of the Society, but will receive all of the benefits therein of such members as well as the benefits of indemnity, and

WHEREAS, The operation of this plan will afford increased protection to the members and decrease the cost to the Society for the maintenance of this malpractice defense department,

*Therefore, Be It Resolved,* That the Medical Society of the State of New York, through its House of Delegates now assembled, upon the recommendation of the legal Counsel of the State Society, hereby endorses the said plan and approve of the same and authorizes that the Council, officers, legal Counsel of the Society and the County Medical Societies take such action with respect thereto as shall be fit and proper to carry the same indemnity feature, provided that nothing herein contained shall require any member of this Society to release his rights now existing to participate in the benefits of the malpractice defense or compel him to subscribe to malpractice defense insurance except as he shall so elect.

### Dr. Charles Francis Stokes

Apologetically it is a pleasure to announce that our former Surgeon General of the Navy, Charles Francis Stokes, is in the best of health and spirits and that those responsible for the unfortunate statement concerning him in the April issue of the JOURNAL have done all they can to expunge that record.

### Wisconsin Home-Coming

The State Medical Society of Wisconsin will celebrate its seventy-fifth birthday by holding a "Home-Coming" meeting in Milwaukee, September 7, 8 and 9, 1921. All former Wisconsin men, whether they have practiced there or left Wisconsin to study medicine, practicing elsewhere after graduating, are invited to this home-coming.

The officers of the society are anxious to secure at this time for mailing purposes the names of all former Wisconsin men. They will confer a favor by sending their names and addresses to Dr. Rock Sleyster, Secretary, Wauwatosa, Wis.

### News Items

Dr. Harvey R. Gaylord, Director of the New York State Institute for Research in Malignant Diseases, and Dr. Charles Cary, of Buffalo, left for Germany on April 23d to investigate methods developed in Germany for applying X-rays to cancer.

The New York Post-Graduate Medical School and Hospital announces that there will be available this year six scholarships under the terms of the Oliver-Rea Endowment.

The purpose of the Endowment is to award scholarships to practicing physicians of the United States to defray in full the expenses of tuition at the New York Post-Graduate Medical School.

According to the wishes of the donor, physicians in the State of Pennsylvania will receive preference in the award of these scholarships.

Applications may be sent to the President of the Post-Graduate Medical School, 20th Street and Second Avenue, New York City.

## CHEMICAL AND PHARMACOLOGICAL ABSTRACTS

*Issued by the U S Public Health Service*  
TRI-PANOCIDAL ACTION OF ARSENIC AND ANTIMONY COMPOUNDS

Quantitative studies by Carl Voegtlin, Homer W. Smith, and others, into the power of certain drugs to sterilize an infected animal, are the subject of a recent report to the U S Public Health Service. Specifically, the studies were directed to ascertaining the minimum dose, injected intravenously, of certain compounds of arsenic and antimony (important in the treatment of relapsing fever, syphilis, sleeping sickness, etc.), which would prove lethal to the majority of white rats that had been infected with trypanosoma and also the minimum dose that would prove effective in destroying the parasites.

The minimum effective dose, below which the drug failed to destroy the parasites, was found to be fixed partly by the reaction between the drugs and the parasites, and partly by the rate at which the drug was absorbed by the tissues of the host. Thus, subeffective doses of antimonylactate ceased to act, not when they had killed a certain number of parasites, but when absorption by the host had lowered their concentration below their "threshold."

Differences in the effectiveness of different arseno and pentavalent compounds are held to depend on the ease with which they are oxidized or reduced in the body, oxidation or reduction being necessary before they can exert their chief toxic action.

The authors hold that, although the results obtained do not indicate with absolute accuracy the clinical value of a compound, they do furnish a valuable quantitative comparison with other compounds.

### UTILITY OF ANTIPLAGUE VACCINES

That the utility of vaccines and serums in antiplague work is at the best not proved, is asserted by G. W. McCoy and C. W. Chapin in a recent report of the U S Public Health Service. Antiplague vaccine was first used on man in 1897 by Haffkins, who used old killed broth cultures in large doses and claimed that marked reduction in the attacks of the disease resulted. Other observers report much less brilliant results, possibly as later work suggests, because different strains of the plague organism affect the efficiency of the vaccine. Inoculation by living avirulent cultures has been found promising by other workers, but its value has not been demonstrated. Vaccination is not known to have ever controlled a plague outbreak.

Evidence in regard to the prophylactic value of serum is meager. Certainly it confers no complete or durable immunity. As a therapeutic agent, however, serum seems to have had some success.

The authors regret that popular and professional interest should so often center on vaccines and serums where antirrat measures are demanded. If people want to be vaccinated for plague, let them, but the important thing is to kill the rats.

### TOXIC EFFECT OF SHAKING ARSEPHENAMINE SOLUTION

That the shaking of alkalinized aqueous solutions of arsphenamine in the air for sixty or even thirty seconds greatly increases their toxicity, probably by oxidation, is stated by G. B. Roth as a result of experiments described by him in a recent report to the U S Public Health Service.

Some preparations, of neoarsphenamine particularly, may be difficultly soluble, and such are liable to be shaken to hasten solution. The results from this are almost always highly toxic and should not be used clinically, although a relatively low-grade preparation may tolerate five or ten seconds of shaking and yet pass the Hygiene Laboratory tests. Shaking in a closed bottle containing no air seems not to increase the toxicity.

The author concludes that the toxicity of the solutions is greatly influenced by the manner of their preparation, and that they should not be made in an open mortar or a large beaker.

## County Societies

### MEDICAL SOCIETY OF THE COUNTY OF ROCKLAND

QUARTERLY MEETING WEST HAVERSTRAW, N Y  
WEDNESDAY, APRIL 6, 1921

The first quarterly meeting was held at the New York State Hospital for Crippled Children. Twenty-four members and three honorary members were present.

The President appointed the following Committee on Legislation: Drs. George A. Leitner, Charles D. Kline and John Sengstacken.

On Public Health: Drs. John C. Dingman, Chairman, William R. Sittler and S. W. S. Toms.

The Society adopted a resolution petitioning the American Medical Association to establish a Section on Anesthesia at the Boston Meeting.

Application for membership was received from Dr. F. A. Glass of West Haverstraw.

Dr. William A. Howe, State Medical Inspector of Schools, described the health service in the schools of the State.

Dr. John J. Nutt, surgeon in chief and superintendent of the New York State Hospital for Crippled Children, together with Drs. Hurtado and Urkuhart of the hospital staff, presented a series of most interesting and instructive clinical demonstrations. These included cases of poliomyelitis treated with braces and various types of operations, tuberculous disease of the joints and spastic paralysis. Following this demonstration a series of interesting lantern slides were presented.

### TOMPKINS COUNTY MEDICAL SOCIETY,

REGULAR MEETING ITHACA, N Y  
TUESDAY, APRIL 12, 1921

The meeting was called to order in the Court House. Minutes of the March meeting were read and approved as read.

The Legislative Committee reported action taken and correspondence with legislators and others pertaining to several bills before the Legislature affecting the medical profession and the welfare of the public. The Committee feels that its work has produced results and has been of definite use.

A communication was read from the New York Society of Anesthetists asking signatures to a petition requesting the American Medical Association to assign a section to anesthetists at the Boston meeting in June. The petition was circulated among the members and received many signatures.

The application of Dr. Homer Tuttle, M.D. was received and referred to the Board of Censors.

Dr. Phebe L. DuBois, New York City physician in charge of the Department of Tubercular Children in Bellevue Hospital, gave a discussion of some of the recent methods of diagnosis, prophylaxis and treatment of disease.

The doctor who has had four years of public health work took up in detail the Schick test in diphtheria and gave a practical demonstration of how the test is made. She also discussed the effects of the food proteins as poisons and as curative agents. Her entire discourse was scientific and extremely interesting. General discussion followed.

Mr. S. R. Burlingame of Cornell University gave a very interesting talk on "The Use of the Electrocardiograph in the Diagnosis of Cardiac Conditions," illustrated by several electrocardiograms. He stated that the use of this instrument is comparatively new but is being rapidly developed and promises to become of much value in diagnosis of heart conditions and in the observation of the

effects of remedies upon the heart. The doctor stated it is being used constantly by the Medical Advisers' Staff of the University and he invited the physicians of the city and county to make use of it. A discussion followed.

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those ending them. A selection from these volumes will be made for review as dictated by their merits or in the interests of our readers.

ORTHOPEDIC SURGERY OF INJURIES. By Various Authors. Edited by Sir Robert Jones, KBE, CB, FRCS. Volume I and II. Oxford University Press, New York City.

FEEDBLENES OF GROWTH AND CONGENITAL DWARFISM. With Special Reference to Dysostosis Cleidocranialis. By Dr. Munk Jansen, OBE. Oxford University Press, New York City.

THE SCIENCE OF OURSELVES (A Sequel to the Descent of Man). By Sir Bamfylde Fuller, KCSI, CIE. Oxford University Press, New York City.

MEDICAL NOTES. By Sir Thomas Horder, M.D. (Lond.), FRCP (Lond.). Oxford University Press, New York City.

GRAPHIC METHODS IN HEART DISEASE. By John Hay, M.D. FRCP. With an introduction by Sir James Mackenzie, M.D., FRCP. Oxford University Press, New York City.

TRAUMATIC SURGERY. By John J. Moorhead, M.D., FACS. Late Lt. Col., Med. Corps, American Expeditionary Forces, Prof. Surgery and Director of Traumatic Surgery, N.Y. Post Graduate Hospital. Second Edition. Entirely Revised. Octavo, 864 pages, 619 illustrations. Philadelphia and London: W. B. Saunders Co., 1921. Cloth, \$9.00 net.

ELECTRO-THERAPEUTICS FOR PRACTITIONERS. By Francis Howard Humphris, M.D. (Brux.) FRCP (Edin.), MRCS (Eng.), LRCP (Lond.), LM (Rot. Dublin), D.M.R.E. (Cantab.). Illustrated. Second Edition. Revised and Enlarged. Oxford University Press, New York. Price, \$7.50.

THE DIAGNOSIS AND TREATMENT OF INTUSSUSCEPTION. By Charles P. B. Cluett, FRCP, MRCS. Second Edition. Oxford University Press, New York. \$2.50.

INJURIES TO JOINTS. By Col. Sir Robert Jones, CB, ChM, D.Sc. Second Edition. Second Impression. Oxford University Press, New York. \$2.00.

A PHYSICAL INTERPRETATION OF SHOCK, EXHAUSTION, AND RESTORATION. AN EXTENSION OF THE KINETIC THEORY. By George W. Crile, M.D. Edited by Amy F. Rowland, B.S. Original Illustrations. Oxford University Press, New York. \$8.75.

HANDBOOK OF ELECTRO-THERAPY. For Practitioners and Students. By Burton Baker Grover, M.D. Illustrated with 103 engravings in the text and 6 plates of 12 charts. F. A. Davis Company, Philadelphia, Pa. \$4.00 net.

THE NEW POCKET MEDICAL FORMULARY. WITH AN APPENDIX. By William Edward Fitch, M.D. Third Edition. Revised. F. A. Davis Co., Philadelphia, Pa. \$2.50 net.

A PRIMER FOR DIABETIC PATIENTS. A Brief Outline of the Principles of Diabetic Treatment, Sample Menus, Recipes and Food Tables. By Russell M. Wilder, M.D., May A. Foley and Daisy L. Lillithorpe. Dietitians, the Mayo Clinic. 12mo of 76 pages. Philadelphia and London: W. B. Saunders Co., 1921. Cloth, \$1.50 net.

**THE PRINCIPLES OF THERAPEUTICS** By OLIVER T OSBORNE, M D Prof Therapeutics, Department of Medicine, Yale University Octavo, 881 pages Phila and London W B Saunders Co, 1921 Cloth, \$7 00 net

**PRINCIPLES OF HYGIENE** A Practical Manual for Students, Physicians, and Health Officers By D H BERGFY, M D, Dr Ph, Assistant Prof Hygiene and Bacteriology, University Pennsylvania Seventh Edition thoroughly revised Octavo, 556 pages, illustrated Phila and London W B Saunders Co 1921 Cloth, \$5 50 net

**KEEN'S SURGERY** Volume VIII By Surgical Experts Edited by W W KEEN, M D, LL D, Hon F R C S, Eng and Edin, Emeritus Prof Principles Surgery and Clinical Surgery, Jefferson Medical College, Phila Octavo, 960 pages, 657 illustrations, 12 in colors Phila and London W B Saunders Co 1921 Price Volumes VII and VIII and Desk Index Volume, Cloth, \$25 00 net per set Sold by subscription

**PRACTICAL CHEMICAL ANALYSIS OF BLOOD** A book designed as a brief survey of this subject for physicians and laboratory workers By VICTOR CARL MYERS, M A Ph D Illustrated C V Mosby Co, St Louis \$3 00

## Book Reviews

**THE SYMPATHETIC NERVOUS SYSTEM IN DISEASE** By W LANGDON BROWN, M A M D (Cantab), F R C P (Lond) Oxford University Press, New York and London 1921 Price, \$4 25

This book is based upon the Croonian Lectures delivered before the Royal College of Physicians of London, in 1918 representing them in an expanded and rearranged form

Though comprehension of the main plan of the autonomic nervous system for the general practitioner is aimed at, the detailed anatomy is properly left to the many excellent accounts already in existence Nor is this work in any sense a catalogue of the diseases affecting the autonomic system, but rather a presentation of its reactions in a few large groups of diseases, such as affections of the endocrine glands of the circulatory and digestive systems and the like The general physiology is well presented, and especial stress is laid upon a differentiation in activity of the sympathetic and parasympathetic divisions of the autonomic system The works of Gaskell Langley Cannon and Crile are freely quoted The functions of the cranial-visceral, and the pelvic-visceral fibres comprising the parasympathetic may be regarded as anabolic By constricting the pupil, slowing the heart, providing the necessary muscle-tone to the alimentary tract and by their relation to the mechanism of emptying, they perform the service of bodily conservation

On the other hand the effects of the sympathetic proper are antagonistic The dilation of the pupil, the acceleration of the heart, the inhibition of the movements of the alimentary tract, and the contraction of the bladder exit demonstrate the katabolic character of its activities

The action of drugs upon the autonomic system is presented in some detail, with the emphasis placed upon the use of this pharmacologic data in the analysis of the constituent parts and plan of the system

Particular stress is laid upon the relations between the endocrine glands and the sympathetic system In summing up he says of the thyroid, the pituitary and the adrenals that the secretion of all three tends to raise blood sugar and lower carbohydrate tolerance, the adrenals co-operate with the

sympathetic in every way, so that the injection of adrenalin imitates the effect of stimulating the sympathetic nerves, the thyroid aids all the katabolic activities of the sympathetic, while the pituitary plays a large part in controlling the excretion of urine The secretion of the first two is not only excited through the sympathetic, but in turn increases the response of other structures to such stimulation this reciprocity has not been observed in the case of the pituitary

In considering the relation of glycosuria to the sympathetic, the conclusion is offered that no explanation of diabetes will suffice which does not consider this relation Its association with neuropathic family history, with shock, excitement, and the influence of race and heredity, are recognized Further, in the absence of organic endocrinopathy, we must resort to a functional disturbance of some part of the endocrine system, either of which conditions must be due to nervous stimuli "And it is in this sympathetic that we find the one nervous control common to them all"

In the concluding chapters the relation of the sympathetic nerves to diseases of the circulatory and digestive systems is considered with the same attention to scientific data and clarity in expression

The publishers deserve commendation for the excellence of the letterpress and entire makeup of this timely book

GEORGE H ROBERTS

**A NURSE'S HANDBOOK OF OBSTETRICS** By JOSEPH EDWIN COOKE, M D Ninth Edition, revised and enlarged By CAROLYN E GRAY, R N, and PHILIP F WILLIAMS, M D Published by J B Lippincott Company, Philadelphia 1920 Price, \$3 00 net

The opening sentence of the introduction to this small volume strikes the keynote to many of the causes for poor obstetrics nursing It reads, "The art of nursing the obstetrical patient is practised by various classes of people," and for this very reason the largest percentage of obstetric patients are cared for by those without the ordinary education to say nothing of the special training required of the present day "R N" nurse

Proper training of the obstetric nurse is certainly in order and it is only by some such means as those outlined in this volume that successful training can be carried out

The arrangement of the subject matter is excellent throughout, and shows that a great deal of time and thought has been given in the preparation

The chapters on accidents and emergencies and those on the care and methods of feeding the baby are certainly worthy of special mention and finally, what the nurse should have ready in her "Kit" ought to appeal to every nurse who expects to do obstetric nursing outside a well appointed Lying-in-Hospital

H B M

**THE NATURE OF ANIMAL LIGHT** By E NEWTON HARVEY, Ph D Professor of Physiology, Princeton University Octavo of 182 pages, illustrated, 13 plates J B Lippincott Company, Phila and London, 1920

Those who are interested in the production and emission of light by living things will surely welcome this handy little monograph while attentive perusal of its pages can scarcely fail to awaken such interest on the part of those who have not hitherto delved into the subject It combines into a somewhat systematized whole many facts and fragments of elsewhere scattered information, presents discussion of, and pronounces logical judgment upon some widely entertained concepts, focalizes attention upon a single mode of light-production as

generally causal of bioluminescence and thus clearly points out a probably fruitful direction of future investigation in this field

A broad survey of the gross aspect of bioluminescence tabulation by orders and genera of luminescent plants and animals, with brief discussion of certain specific cases and reference to the possible utilization by man of the mode of light production by some of these animals make up the substance of the book's first chapter. In Chapter II the chief physical chemical and physiological modes of light production are passed in review and the general inference drawn that bioluminescence is a form of chemiluminescence being in the vast majority if not in all instances due to oxidation of some specific photogenic substance which is formed in or by the activity of living tissue cells and therefore classifiable as an oxy-luminescence. In Chapter III the author gives evidence that as regards its physical characters and its chemical and physiological effects animal light is of the same nature as daylight, though of much lower intensity and more narrowly limited spectral extent. Chapter IV deals with the structure, activity and probable value to animals of photogenic tissues and organs. Clear distinctions are therein made between intracellular and extracellular luminescence, certain types of photogenic cells and their modes of activity are characterized, the comparative development of photogenic and visual organs is discussed and the biologic significance of the emitted light is suggested in the comparatively few instances in which its utility is either apparent or probable. In the remaining three chapters two of which (V and VI) deal with the chemistry and one (VII) with the dynamics of animal light production the author furnishes evidence that the emitted light is due to the interaction in the presence of water and oxygen of luciferin and luciferase, during which there is progressive oxidation of the luciferin under the accelerating influence of the luciferase that the velocity of this interaction and consequently the intensity of the emitted light is dependent upon not only the chemical structure but also the concentration and temperature of these two substances one of which (luciferase) is a protein and the other (luciferin) probably a protein derivative, and he offers a tentative hypothesis to the effect that these two substances combine to form a luciferin-luciferase compound during the oxidation of which the luminescence occurs.

The book is especially worthy of recommendation because of the clearness and simplicity with which it presents the chemical aspect of the subject and because of the value of its appended bibliography.

The printer's proof was evidently read with care and the entire make up of the book is in every respect commendable.

J C C

**HYGIENE OF COMMUNICABLE DISEASES. A Handbook for Sanitariums Medical Officers of the Army and Navy and General Practitioners.** By FRANCIS M. MCKENSON M.D. Illustrated. Published by Paul B. Hoeber New York City 1920 Price \$5.50

This book of nearly 800 pages covers a much wider ground than the title would seem to indicate. The first and major part of the book is devoted not only to the causes and prophylaxis of communicable diseases but likewise to personal hygiene, military, naval, railway, municipal, rural, school, industrial and so-called exotic hygiene and sanitation. Under the last title the author treats Arctic Sanitation and Tropical Sanitation in a brief chapter. Chapter XIX treats on Sanitary Measures following Great Disasters.

The second part of the book that dealing with Communicable Diseases is very concise, lucid and readable.

A book of this character is necessarily compilative. It is designed to serve as a Handbook for Sanitariums

Medical Officers of the Army and Navy and General Practitioners. The treatment of each subject is necessarily fragmentary and incomplete. This is so, especially with the chapter of twelve pages on Industrial Sanitation, with that on Sanitary Administration and several other chapters dealing with very important topics to which the author does not give sufficient subject.

The thirty six illustrations are fairly illustrative and the book on the whole is a credit to its able author and will be found useful to those interested in the subject.

G M P

**PRACTICAL PREVENTIVE MEDICINE.** By MARK F. BOYD M.D., C.P.H., Prof. Bacteriology and Preventive Medicine, Medical Department University, Texas. Octavo 352 pages 135 illustrations Philadelphia and London W. B. Saunders 1920 Cloth \$4.00 net

The author has presented the important features of preventive medicine in a concise form. No originality is claimed for the material in the book and liberal references are given. Of necessity in covering such a wide field in so short a space only the most important factors are touched upon.

The author states in his foreword that he believes that the book represents the minimum knowledge of the subject which a student of medicine or a practitioner should possess.

The arrangement of chapters is rather unique in that the chapters or sanitary aspects are interwoven with the chapters dealing strictly with preventive medicine. One chapter which particularly deserves favorable comment is Chapter XXVIII entitled Diseases arising from the Puerperal State. This aspect of preventive medicine is usually omitted in text books upon the subject.

The book is well indexed and well illustrated—both from the standpoints of quantity and quality.

E H M

**COMMON INFECTIONS OF THE KIDNEYS.** With the Colon Bacillus and Allied Bacteria. Based on a Course of Lectures delivered at the London Hospital. By FRANK KIDD, M.B. B.C. (Cantab.), F.R.C.S., Eng. With an additional lecture on the Bacteriology of the Urine by Dr. PHILIP PAXTON. Oxford University Press New York and London 1920 Price \$7.50

This small volume presents much food for thought, both to the general practitioner and specialist. The author plainly advances principles which make for progress in the diagnosis and treatment and clear understanding of urinary lesions. In his comprehensive review of one hundred and forty cases of pyelitis he displays an intimate knowledge of his work.

Dr. Kidd shows that a large majority are blood borne infections. In three cases he was able to obtain positive blood cultures two in which specimens were taken during the rigor, one shortly after. In this connection it would be interesting indeed to study cultures taken as a routine during chills from urinary infections.

The author reports a number of hematogenous infections of the testicle, prostate and bladder wall.

The author pictures bacteria present within the body on frequent occasions ready to attack the organ of reduced vitality from whatever cause. This theory is entirely at variance with that of Sir Almroth Wright and Dr. Adams. Nor does he agree with Dr. Lanes theory of toxic absorption from the intestine but that the bacteria themselves invade the blood stream.

In spite of the fact that many urologists have abandoned the use of collargol solutions for renal lavage and pyelography because of infiltrated kidney, he continues the use of a 5 per cent solution with striking results. He has cured almost all cases of chronic pyelitis by this method in one to three or four treatments—



cases which have not been helped by any other means. He has demonstrated on sheep's kidneys, on the cadaver, and on certain human operative cases that the solution in this strength penetrates through and between the tubules and appears beneath the capsule in about three minutes without damage to the organ itself. He pictures the kidney as a "sponge-like filter."

Forty per cent of the acute pyelitis cases resulted in a spontaneous cure. In this connection it is important to note that the author completely alkalinizes the patient in the acute stage for about ten days or two weeks with sixty grains of potassium citrate, given at first every two hours and gradually reducing the frequency and amount of dose, watching the urine with litmus at intervals.

He has proven this to be the most effective method and at the end of the course gives urotropin and acid sodium phosphate. In his hands it has saved more than one case from acute hematogenous destruction of the kidney. Out of 140 cases 117 were caused by the colon bacillus.

Dr Kidd believes that closer cystoscopic study of the obscure albuminurias being treated indefinitely as "medical kidneys" would reveal the fact that not a few are due to infection curable by renal lavage.

AUGUSTUS HARRIS

THE RADIOGRAPHY OF THE CHEST Vol I Pulmonary Tuberculosis With 9 Diagrams and 99 Radiograms By WALKER OVEREND, M A, M D (Oxon), B Sc (Lond) Published by C V Mosby Co, St Louis 1920 Price, \$5.00

This is a book of moderate size containing ninety-nine radiograms and nine diagrams. The first chapter deals briefly with technique and the radiographic appearance of the normal chest. The author then discusses the classification of lesions and gives his own, which is a most rational one based on the clinical course and the radiographic findings.

The author, who is evidently a clinician as well as a radiographer, gives a brief digest of the history, physical examination, clinical diagnosis, and in some instances, the post-mortem findings with each radiogram. The arrangement of text and illustrations is not altogether good, for in many instances the notes and radiograms of the same case are several pages apart, making it inconvenient to consult the radiogram, while reading the interpretation of the same.

The illustrations are generally good, but in some cases the entire pulmonary area is not shown.

In the last chapter there is a brief discussion of various topics such as the relative value of clinical and radiographic examination, incipient tuberculosis, tuberculosis in the great war, the heart in pulmonary tuberculosis, etc.

While not a profound exposition of the subject, this work of a combined clinician and radiographer contains material which should be of interest to both the internist and the radiographer.

TROPICAL OPHTHALMOLOGY By ROBERT HENRY ELLIOT, M D, B S (Lond), Sc D (Edin), F R C S (Eng) Seven plates, 117 illustrations Oxford University Press, New York and London, 1920 Price, \$12.50

Tropical Ophthalmology, as its title implies, treats of the many affections of the eye which are indigenous to the tropics. Also consideration is given to the various forms of ocular diseases incident to all climates.

In the opening chapter, the author gives this splendid piece of advice, "The surgeon who would do his best for these patients must not be lacking in imagination. He must put himself in their place." Or in other words the doctor who aims to get the best possible results from his efforts should always apply the golden rule in his practice.

A description of the so-called Madras operation for cataract is given by Lieut-Col Kirkpatrick. First, with a Boroman's needle, a T-shaped laceration is made in the anterior capsule. Then immediately after, the corneal section is made and lens is delivered in the usual manner. Of course the principle of this capsule-laceration is essentially the same as Homer Smith's preliminary capsulotomy. However, there is this difference. The Homer Smith method allows several hours to elapse before beginning the operation for extraction. But the Madras method proceeds with the extraction directly after opening the capsule. The latter plan is probably better adapted to India where a surgeon may operate on 30 or 40 cataract cases in a single morning.

A chapter is added on Warning and Rules for cataract operations. The first rule is quite important, "Never be in a hurry, there is plenty of time." Another admonition is well worth remembering, "Finish your section slowly and gently."

The chapter on Glaucoma is of special interest. Some idea of the prevalence of glaucoma in the Orient may be gained by reading the statement that, at the Madras Eye Hospital, in a series of years there was an annual average of 225 eyes operated on by trephining for the relief of tension.

The treatise of Colonel Elliot's will prove of inestimable value to all ophthalmic surgeons practising in the tropics and subtropics. The work will also be highly appreciated by all others who are interested in ophthalmology.

JAMES W INGALLS

THE BASIS OF PSYCHIATRY (Psychobiological Medicine) A Guide to the Study of Mental Disorders for Students and Practitioners By ALBERT C BUCKLEY With 79 illustrations J B Lippincott Co, Phila and London 1920

This text-book of mental diseases, by a very gifted author, follows the modern methods of teaching. It presents a very difficult subject in a clear and concise manner. The chapter on biologic phenomena, heredity, and the Mendelian inheritance furnishes very interesting data to the student.

His presentation of the Freudian doctrine is clear, but too brief, the same might be said of the psychology of the unconscious, discussed in the abstract.

However, inasmuch as there are very few reliable books on Psychiatry by American authors, this book is most welcome, and can be recommended as a safe guide for the student.

JOHN F W MEAGHER

AMERICAN RED CROSS WORK AMONG THE FRENCH PEOPLE By FISHER AMES, JR Published by the Macmillan Company, New York 1921 Price, \$2.00

This volume is the last of the series of books describing the activities of the American Red Cross in the various countries of Europe during the war.

To the same degree that the big work of the Armies was performed in France, so the greatest work of the American Red Cross was done in that country also.

Its activities were twofold, viz, in the war zone and among the civilian population. This division is recognized in this book, therefore the first chapters deal with the service of this organization as a direct aid to the fighting forces. Chapter VI on "The Mutilles," is interesting from a layman's viewpoint in its description of the treatment of the crippled and disfigured.

The latter half of the book describes the work among the children, the war orphans, and in the Paris dispensaries. The work in other French cities, and the general campaign against tuberculosis are well inscribed.

The book clearly shows the influence that the American Red Cross exerted in cementing the friendship of the French people to our country. The gratitude of the French is shown to be very deep-seated.

A E S

**INITIATIVE IN EVOLUTION** By **WALTER KIDD MD**  
**FRSE** With numerous illustrations **H T & G**  
Witherby, London England 1920 Price 15s net

Fully one third of this dissertation is devoted to a discussion of the arrangement of the hair on the body of man and animals in explanation and proof of the author's contention that the direction of body hair is conditioned upon the action of the underlying muscles. Another large block deals with the integument of the hands and feet with particular consideration of the folds and papillary ridges. Dr Kidd has been pursuing this investigation for more than a score of years with the thought in mind as he says of contributing a little and maybe only a very little toward establishing the theory that variation in species is an environmental circumstance rather than inheritance or selection (p 20 and pp 64 et seq)

The matter is brought within the compass of ordinary intelligence by a somewhat detailed reference with diagrams to the arrangement of the eyebrows and the rather humorous advice to prospective brides to be careful to inspect the eyebrows of father- and mother-in-law for indications of their sons' temperament! There is not much food for passing fancy in this controversial treatise for the average physician. The author did not mean it for him. He says he has tried to separate a little grain of good science from the chaff of bad speculation. His style is delightfully human for such an intensely ultra scientific subject. In the profundity of the thought there gleam droll arguments and sparkling wit in the ponderous assault upon schismatic evolutions. The Preface alone is a seductive invitation to enter and the Summary a cold Good day Sir to and from a peculiar book.

A F E

**CLINICAL OPHTHALMOLOGY FOR THE GENERAL PRACTITIONER.** By **A Maitland Ramsay MD** Foreword by **Sir James Mackenzie MD FRCS** Oxford University Press New York and London 1920 Price \$16 50

If every general practitioner were familiar with this work there would be no cases of glaucoma treated with atropine or of iritis treated with argyrol or simply an eye wash. The diagnosis of the commoner eye conditions is made simple and clear at least as concerns un complicated cases.

The opening chapters seem disappointing and a bit empty to an ophthalmologist—something seems lacking. But as one reads on one finds it is the elaboration of detail always present in a text book on ophthalmology that is missing. And for the purpose of the book this is a happy miss. Thus the essential facts are presented in a simple easy manner.

The chapters are all short, after comprising only nine or ten pages. This relieves the heaviness of the work and makes it easier for one to pick it up at odd moments and go through a chapter quickly.

The points mainly dwelt on are diagnosis and treatment. Etiology, pathology, and long winded discussions concerning them are eliminated.

The question of treatment is well covered and the author is careful to designate the points at which the general practitioner should no longer shoulder the entire responsibility of the case but seek to shift it to the more highly trained specialist.

Refraction and operations are briefly covered.

At the end is a long list of remedies with their application described and very important a glossary. Altogether a practical and delightful work.

E. CLIFFORD PLACE.

**DISEASES OF THE EAR** By **PHILIP D KERRISON MD**  
332 illustrations in text and 2 full pages in color  
Second Edition revised and enlarged. Published by  
**J B Lippincott Company, Philadelphia Pa 1921**  
Price \$6 50

It is a pleasure to review this fine piece of good workmanship. The original edition of Kerrison appeared in 1913 at a time following and during a period of great activity in the investigation of the functions and the development of the surgery of the labyrinth. The treatment of this section therefore properly occupied a position of importance, was treated thoroughly including the anatomy and physiology of the subject as well as the pathological conditions and the interpretation of the disturbances to which the latter gave rise. This was a factor at least in the immediate success with which the appearance of the book was met though other sections of the book were none the less well written and generally appreciated. This portion has been somewhat enlarged and revised in this edition. The surgical treatment of the mastoid the static labyrinth the lateral sinus and the brain have been admirably handled. The text is for the most part terse and free from obscurities and with a sufficiency of detail, an inclination to make the illustration serve for lengthy explanations is noticeable yet the printed matter covers fully the intermediate points of technique. The book bears evidence of painstaking work in which a thoughtful decision as to the most desirable manner of handling each section of the book is clearly manifest. It is doubtless the most widely used text book on otology in this country, and its popularity seems bound to increase. This result the book has earned on its merits because it describes the things the reader wants to know in a style that is sufficiently elaborated clear and in logical sequence.

W C B

**THE OXFORD MEDICINE** By Various authors Edited by **HENRY A CHRISTIAN AM MD**, and **SIR JAMES MACKENZIE, MD, FRCP, LL D FRS.** In Six Volumes Illustrated Volumes II III Published by the Oxford University Press New York City 1920 1921

The second and third volumes of Oxford Medicine are both at hand and are due careful consideration not only by the reviewer but by all practitioners of medicine. A rather full consideration of the plan and scope of these books was given in a previous review. Subsequent comment must be limited to the character of the individual contributions and as this work is in reality a series of exhaustive monographs it is a matter of some difficulty to point out individual excellence when the high quality of the material and the standing of the individual authors is considered. As a matter of fact each contribution that has so far been looked over is worthy of its author and individual criticism must rest largely upon the point of view of the reader. As in the previous volumes the press work and make up are up to the standard always set by the Oxford Press.

H G WEBSTER

**A TEXT BOOK OF PHARMACOLOGY AND MEDICAL TREATMENT FOR NURSES** By **J M FORTESCUE BRICKDALE MA, MD (Oxon), MRCP (Lond), Capt RMC (TF)** Oxford University Press, New York and London 1920 Price \$10 00

This is a most comprehensive book as its title would indicate. It was written by a competent man and must have entailed a lot of work. From a mechanical point of view the book surpasses many of our American products—but why in the world any one should spend so much valuable time and effort in producing such a book for the use of the already overburdened pupil nurse is beyond understanding. Any nurse who masters this book will be qualified to practice medicine.

M F DEL.

**PHYSIOLOGY AND BIOCHEMISTRY IN MODERN MEDICINE**  
By J J R MACLEOD, M B, Professor Physiology  
University of Toronto Assisted by ROY G PEARCE,  
A C REDFIELD, N B TAYLOR, and others Third  
Edition 243 Illustrations, 9 Plates in Colors 1920  
\$10 00 C V Mosby, St Louis, Mo

The physiologists and biochemists have recently contributed many new and simple methods of investigation, adding much to the elucidation of many obscure diseases

This volume brings up the physiological facts and emphasizes their clinical application It is divided into nine parts as follows 1—The physicochemical basis of physiological processes 2—The circulating fluids 3—Circulation of the blood 4—Respiration 5—Digestion 6—The excretion of urine 7—Metabolism 8—The endocrine organs or ductless glands 9—The central nervous system and the controls of muscular activity

The section on chemistry contains the recent work on acidosis and the effects of chemical changes on respiration That on Blood Circulation includes Krough's new work on the capillaries and the new methods for measuring the functional capacity of the heart Considerable new material has been added to the Excretion of Urine recently revised by R G Pearce Other subjects, important to the clinical investigator such as Vitamines, Shock and Endocrinology have been brought to date

This work fills a definite want and will be of distinct value to the medical student in his senior year and to the busy physician The author has included in this work a valuable Bibliography

H M F

**"DIABETES," A HANDBOOK FOR PHYSICIANS AND THEIR PATIENTS** By PHILIP HOROWITZ, M D 27 Text Illustrations, Two Colored Plates Price, \$2 00  
Paul B Hoeber, New York 1920

The object of the author is to instruct both the physician and the patient concerning the necessity of accuracy, perseverance and co-operation in the care of this disease The book contains the actual diets to be used in certain cases and the author insists upon attention to detail—a consideration of importance in the care of any patient The cases are divided into mild, moderately severe, severe and juvenile diabetes, according to the severity of the condition, and suitable diets are given for each type of case This book contains the usual diet tables, menus and methods of preparation of foods The print is large, clear and easy to read

H M M

**THE UNSEEN DOCTOR** Formerly published in England as "One Thing I Know, or The Power of the Unseen" Authorized edition With preface by J Arthur Hill New York, Henry Holt and Company, 1920 (The Psychic Series)

These two books are practical illustrations of Modern Spiritism, Theosophy or Modernism, and Christian Science They substantiate the criticism of Dr A T Schiefeld in his book on Modern Spiritism, that nothing has really been discovered and nothing proved of the unseen and unknown They are among the curious outcomes of the late war

H A F

**CREATIVE CHEMISTRY** Descriptive of Recent Achievements in the Chemical Industries By EDWIN E. SLOSSON, M S, Ph D Illustrated The Century Co, New York City 1920

This is one of the series of the Century Books of Useful Science and is written for the general reader, and is therefore as free as possible from technical terms This book originated in a series of articles written for *The Independent* in 1917 and 1918 with the idea of

interesting the general public in the applications of chemistry to warfare, to agriculture and the arts

The author treats largely of the developments of chemistry industries during the war and stimulated by the necessities of the new conditions brought about by the war

He describes the processes used in the fixation of nitrogen from the air, the uses of this nitrogen in the manufacture of high explosives, and of fertilizers, and the newer sources of potash for plant food He then takes up the production of dyes and coal tar colors perfumes and flavors, cellulose and gun cotton, rubber, the rival sugars, corn products, sources and industrial use of fats Then follows a chapter on gases and fumes used in warfare, one on the products of the electric furnace, and one on the improvements in steel making and much information about various other metals

The book ends with twelve pages of bibliography or what the author calls "reading references," giving the titles of books and articles where more detailed information on all subjects of which the book treats, may be found

This book is intensely interesting and should be read by every one who wishes to inform himself on the achievements of modern chemical science E H B

**PULMONARY TUBERCULOSIS WITH CASE HISTORIES** By EDWARD O OTIS, A B, M D A Handbook for Students, Practitioners and Patients Second Edition W M Leonard, Boston, Mass 1920 Price, \$3 50

A new edition of any book which is brought to date by many of the recent valuable contributions to its subject, as is Dr Otis' work on Pulmonary Tuberculosis, more than justifies its existence In addition to the general study, the author has placed within its 200 pages lessons learned from the examinations of soldiers in the late war, the methods and essential points in physical examination approved by our army authorities, and the diagnostic standards of the Framingham demonstration The book is written in a simple, pleasing style, with remarkable completeness for its size, with details of diet, climate, rest, mechanical and medicinal treatment, and with well-chosen illustrative case histories and abstracts The book is said to have been written for the layman, as well as the physician, but the physician who masters, as he quickly may, all its contents, will be well qualified to care for the tuberculous individual

T A MCGOLDRICK

**FRENCH-ENGLISH MEDICAL DICTIONARY** By ALFRED GORDON, A M, M D Octavo of 161 pages P Blakiston's Son & Co, Philadelphia 1921 \$3 50 net

The constantly increasing importance of French literature to the American physician, be he looking up a subject for his own information or writing for the information of others, makes this dictionary particularly welcome at this time It is written by a man thoroughly familiar with French medical terms and seems to be fairly complete

It is interesting to note the French refer to syphilis variously as the "German disease," the "Neapolitan disease," the "Turkish disease," as well as the "French disease" It seems to be customary to blame this malady on most adjoining countries, but it is seldom that a nation admits that it is a home disease

The work includes a brief table comparing the metric system with the English measures and also has a key to the pronunciation of French words This gives the various French sounds probably as accurately as is possible with the English alphabet, but fortunately the correct French pronunciation is often unnecessary to one who is merely examining the literature While French is difficult to speak correctly it is comparatively easy to read, especially to one having a knowledge of Latin, so with the aid of a dictionary such as this, it is quite possible to get the gist of a technical article in French

CARROLL CHASE

# NEW YORK STATE JOURNAL *of* MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL 21, No 6

NEW YORK, N Y

JUNE, 1921

## THE FUTURE OF MEDICINE IN AMERICA\*

By LEWELLYS F BARKER, M.D.,  
BALTIMORE MD

### INTRODUCTION

THE invitation to address you at this meeting upon the future of medicine in America reached me only three days ago. The comments that I shall make upon this topic should therefore be looked upon more or less as a simple reflex response to a sudden stimulus rather than the more complex result of a reaction that has been permitted of a prolonged deliberative process.

In speaking of the future of medicine in America I lay no claim to the possession of any especial prophetic power. Human records are so full of the failures of prophecy that the modern man has learned to be cautious and reticent. Sharing as I do the general skepticism of prophecy, you will not suspect me, I am sure, of being over confident of the value of my estimate I may make of the future of medicine. I shall simply try to report how the coming period in medicine looks to one who, during the last thirty years has been in fairly close touch with medical scientists, medical educators and medical practitioners.

Science, industry, social organization and philosophy have been undergoing momentous changes in our time, but in no domain have the alterations been more marked than in medical research, in medical education and in medical practice. Indeed, it is not an over statement I think, to say that they have been revolutionary throughout the world and, above all, in America. The tremendous growth of the natural sciences that underlie medicine has made possible an unprecedented advance in the medical sciences themselves, with ever-increasing opportunities for application of the results to the detection, the cure and the prevention of disease. Europe in its maturity with old established hospitals, its great universities and its liberally maintained research institutes, undoubtedly led the way in these advances, but young America, with its eager, earnest, ambitious, idealistic, restless, roving and cosmopolitan students, has been quick to absorb and to assimilate the best that the several countries of Europe have had to give and has, in turn, taken the initiative in the pur-

suit of knowledge and in the fruitful application of that knowledge to practical life.

In 1914 came the great war, with its wholesale sacrifice of materials and men. The whole world has suffered grievously and the progress of science has, temporarily, been seriously checked. We of the New World have suffered enough, but our injuries are minimal contrasted with those of the Old World. European medicine though not wholly paralyzed, will of necessity be relatively parietic at least for a decade or two. It would seem that an unusual opportunity for creative work now opens up before America. Men, money and materials are here in greater abundance than elsewhere. Our duties and our responsibilities are obvious. The failing hands of Europe have thrown to us the torch, let it be ours to hold it high.

There are many evidences that the medical profession in America is keenly alive to existing opportunities and to present duties. All over this country preparations are being made for a great advance in science and, especially, in medical science. We are not dependent upon the vision of any single seer to tell us what can be seen ahead. Mount Pisgah is, to day, an easily accessible hill and there are many on its summit viewing the Promised Land. Let us then consider briefly the prospects for medical science, medical education, medical practice, and preventive medicine in the near future.

### THE FUTURE OF MEDICAL SCIENCE IN AMERICA

That the progress of the medical sciences is, to a very large extent, dependent upon advances in the underlying sciences of physics, chemistry, biology, psychology and sociology, and upon the training of prospective medical students in these fundamental sciences precedent to the undertaking of their medical studies proper is a lesson that has been well learned in this country. It is matter for gratification to observe, also, the rapidity with which physics, chemistry, biology, psychology and sociology have undergone development in America. Recognition of the importance of the intensive cultivation of these sciences, not only for medicine but for our whole industrial and social life, is becoming general. Provision has been made for work in these basal sciences in our greater universities, in privately endowed research institutes, in government laboratories and in great manufacturing plants in all these institutions arrangements have been

\*Oration on Medicine Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 3 1921

made for the prosecution of original researches in natural science subjects and for the training of young men in their methods while they also study their principles. We must see to it that these activities and opportunities are not only preserved but expanded. Careers in these branches must be made attractive, and the numbers of men entering upon them must be increased. The departments representing such subjects in our state universities should be more liberally subsidized than they are now. Institutions like the Marine Biological Laboratory at Woods Hole and other research laboratories of biology should secure larger private endowments or governmental support. The Bureau of Standards and the scientific laboratories in the several departments in Washington should receive adequate appropriations and, if possible, be more extensively manned. Great manufacturing establishments should follow the lead of our more enlightened electrical, chemical, metallurgical, mining and pharmaceutical corporations in making provision for research in applied science if America is to hold its place in the keen competition for world trade that will follow the war. Special institutes for intensive work in psychology, in sociology, in psychobiology, and in the study of human behavior and of industrial relations are urgently needed and will doubtless soon be provided. Without progress in the several directions mentioned, the advance of medicine itself will be hampered, and those of us who are interested in the welfare of medicine should see to it that a knowledge of the need for these activities is widely promulgated.

The medical sciences proper, both preclinical and clinical, have, since 1890, made marked progress in this country.

The preclinical sciences entered upon a blossoming period at the beginning of this century. In a majority of the states of the Union there are now institutes, more or less well equipped, devoted entirely to the subjects of anatomy, physiology, biochemistry, pharmacology, pathology and bacteriology. Each of these institutes has at its head a director who devotes his whole time and attention to teaching and research in his subject. In many institutes provision has been made for an adequate corps of assistants and for suitable technical help.

In the near future, however, it will be necessary to make careers in these preclinical sciences more attractive to young men than they seem to be now. It is fortunate that many of the ablest minds at work in medicine are at present engaged in the cultivation of these preclinical sciences, but their devotion has, at least in many instances, entailed large financial and social sacrifices. Judging from the difficulty at present experienced in securing accessions to the staffs of these institutes, ways and means will have to be devised to make the positions more rewarding

on the material as well as on the intellectual and social side, for, otherwise, the necessary succession of preclinical scientists will be lacking. The domain waiting for tillage by the preclinical scientists is enormous in scope. Normal structure and function must become ever better understood in their chemical, physical and biological details in order that pathological histology and cytology, pathological physiology and pathological chemistry, may continue satisfactorily to evolve. And on all these preclinical subjects as a basis the clinical sciences are gradually built up. Those who are interested in the clinical sciences of diagnosis and therapy should, therefore, take an active interest in favoring the continuous development of the preclinical sciences in every legitimate way. I believe that American medicine with its present conceptions and ideals will not fail adequately to provide for these preclinical subjects, but I cannot emphasize too strongly the fact that the material and human needs in these scientific departments now urgently demand serious attention.

The clinical sciences, both pure and applied, have also been growing in a very satisfactory way since the early nineties. The growth of these sciences that deal with the diagnosis and treatment of disease and advances in the medical art have been due partly to the activities of men working in the clinics of the medical schools, partly to those of men engaged in private practice and partly to those of men occupied in public health work.

We, like the British, are an eminently practical people, and it is not surprising that the major efforts of the medical profession should be expended in practical clinical work. For after all it is for the diagnosis of disease, the treatment of disease, the prevention of disease and the maintenance of the highest possible level of the physical, mental and moral health of the people that the medical profession exists and that the several groups of medical sciences, clinical and preclinical, have been developed.

Many men, younger and older, are now at work in this country devising and testing new and more precise methods for the detection of abnormalities of structure and of function in patients and planning and trying out new methods of treatment and of prevention. It has been found that the method of science is just as important in the pursuit of new clinical knowledge as in the prosecution of premedical and preclinical research. System and precision are just as necessary in one domain as in the other. Facts must first be carefully collected, arranged and compared, then they must be brooded over, in order that suggestions of interpretation may arise in the mind, and finally these suggestions must be tested for validity before they are accepted as true or rejected as false. This is the method of science and the clinician uses it just

as does the physiologist or the chemist. By applying this method in consulting rooms, in the wards of hospitals and in the clinical laboratories puzzling clinical problems are steadily being solved.

The main difference between clinical work and preclinical work lies in the greater complexity of the clinical problems. In addition to possessing knowledge in his own field the clinician has to be more or less conversant with the state of knowledge in all the preclinical and premedical fields.

Owing to the great extent of the clinical domain there has, as everyone knows, gradually developed a variety of medical and surgical specialties with corresponding concentration and intensification of the efforts of particular workers. This division of labor has brought with it certain special difficulties and disadvantages, but on the whole, the advances made in the clinical sciences by means of specialization have been astounding. That there will be a cessation of this tendency to specialization seems unlikely; on the contrary, the differentiation of workers will in the future in my opinion, become ever greater, for men have found that mastery comes through limitation of field and concentration of interest and effort. Coincident, however, with this ever increasing division of labor, provision has to be made for the synthesis of the results of the special workers into harmonious wholes. For this integrative function, men of wide training and sympathies, with comprehensive grasp, possessing the so called "encyclopedic" type of mind will be needed more than ever before to sift the essentials from the nonessentials to arrange, to classify, and to reduce to manageable volume, the total results of all the special workers. Contributors to systems of medicine and surgery, writers of text-books and authors of articles that disseminate the newer knowledge among general practitioners will perform a service that will be most helpful. For unless new knowledge is quickly and adequately organized so that it may be generally absorbed, the practicing profession and the public will be wrongly deprived of benefits that should accrue to them. The medical press and those who contribute to it therefore, represent parts of our professional organization that will grow in importance. We have still far to go in this country before we shall reach even the perfected forms of medical communication that existed in certain countries in Europe before the war. The need for extension and improvement of our medical press is recognized, however, and the near future will, I feel sure, see a better provisionment

#### THE FUTURE OF MEDICAL EDUCATION

We take pride and rightly, in the vast improvements that have been made in medical education in this country in our time. We have observed the passing of the old proprietary medical school, an institution that met the needs

of its period, but that was wholly insufficient for the requirements of the present generation. It has been replaced by the modern university medical school, in which teaching in graded classes and research are carried on in the several branches of medicine just as they are in the non-medical departments of the university. A prodigious change has been wrought in a surprisingly short space of time. The poorer schools have been entirely weeded out and those capable of survival have been nourished and strengthened until to day we have, scattered through the country, a number of medical schools in which the preclinical and the clinical sciences are very well taught.

Many factors have been operative in the achievement of these reforms. They include (1) the recognition that medicine has become a group of sciences, based upon the natural sciences and to be studied in the same way as they, (2) the example of higher medical education in Europe, (3) the realization of the necessity of a good general education and of a preliminary education in the natural sciences and in languages for the student preceding his entrance to the medical school and of the importance of excluding from the medical school students incapable of higher education, (4) large endowments of certain private institutions that permitted the setting of examples of what modern medical education should and can be, (5) the emulation of such examples by other schools as soon as funds could be secured from private or public sources for their support, (6) the thorough investigation of the status and needs of medical schools in the United States and in Europe by the Carnegie Foundation for the Advancement of Teaching, (7) the continuous, earnest work of the Council on Medical Education of the American Medical Association which divided medical schools into classes according to their equipment, their teaching personnel and the success of their students at state board examinations, (8) the examinations for licensure in the several states, (9) the deliberate formulation of ideals of medical education by various eminent educators and (10) the requirement of a hospital internship after graduation before entrance upon practice.

What the immediate and the distant future have in store for medical education in the United States, who can guess? We are confronted at the moment with a number of problems that press for solution. These problems are partly financial, partly matters of policy. Vast amounts of money could advantageously be used if they were available. But money will not be plentiful for educational purposes for some time yet. The war must first be paid for. Budgets of all sorts must be carefully pruned at times when people are growing under taxation. Even if money were available men could not at present be supplied with the training that is desirable to fill new posts.

The lack of a sufficient number of men trained in the preclinical sciences adequately to supply the departments of our medical schools is especially alarming at this time, and the adoption of the whole-time system in the clinical departments of many institutions will bring with it its own difficulties—those of finance, those of personnel, and those of adjustment among whole-time workers and part-time workers. For the welfare of the schools both types of workers would seem to be desirable in the clinical branches, and just what functions each type of worker is to perform must gradually, through experience, be decided. In 1914, the Medical Faculty of the Johns Hopkins University adopted a whole-time-professorship plan for three of its clinical departments. The heads of these departments and some of their assistants were salaried and were required to give their whole time to the institution. If these whole-time physicians, surgeons and pediatricists see private patients at all, the fees for the services rendered go to the institution and not to the doctors. The faculty is committed to the whole-time plan and believes in it. These departments were not manned entirely by whole-time men as some have erroneously supposed. Part-time professors and assistants also received appointments and participated in the care of patients, in teaching and in investigation. This utilization of both whole-time men and part-time men in clinical work has, in my opinion, many advantages over an exclusively whole-time or an exclusively part-time staff.

It is of great help to a hospital to have certain men whose whole time and interests are given to the work of the institution, undisturbed by outside activities. Such men can set a wholesome example of devotion to teaching and research, and can help to instil the spirit of scholarship in the medical students. Certain types of men, too, are happier in whole-time positions that protect them from outside solicitation, set them free from the necessity of practising privately for income, and give them unusual opportunities for uninterrupted study and teaching. Protection of time and energies would seem to be especially necessary for men who desire to do continuous work in the laboratories of the clinics. Such men should be protected also from too much administrative and routine work within the department.

The part-time man of high type is also an asset to a university clinic, for he will attract clinical material to it and will bring into the clinic, along with the knowledge and experience gained in private practice, a certain robustness and tolerance indicative of his wider contacts with outside life. He can exert, too, a wholesome influence upon the medical students who expect, later on, themselves to engage in practice, for men are greatly stimulated by contact with seniors who have been successful in careers to which they themselves aspire. Furthermore, many of the tasks of the clinic can be just as

well performed by part-time men as by whole-time men, with corresponding conservation of the financial resources of the department and of the time and energies of the whole-time appointees.

But many perplexities confront medical faculties that are trying to adopt whole-time plans of organization in the clinics. One of these is financial in origin, since, to be successful, such plans require control of large funds. Another difficulty lies in the fact that many young clinical scholars who are attracted by whole-time careers, with conditions as they are at present, feel that they will have to go through a long period of uncertainty before positions that will ensure a living for themselves and their families can be secured. Too much of this kind of uncertainty may limit the numbers of aspirants and so tend ultimately to the mediocrity of available candidates. Still another difficulty lies in the tendencies of human nature to intolerance and prejudice. Though larger minded people may escape from these tendencies, the smaller-minded members of closed groups are all too prone to yield to them. The Pharisees and Sadducees of such closed groups are all too likely to be reciprocally suspicious of one another's motives and ideals. If cliquism with its dangers is to be avoided, a strong effort must be made to weld the whole-time men and the part-time men into a single group whose members cherish mutual respect and harmoniously co-operate in the performance of a common task. Again, if a whole-time plan is to be successful, it must see to it that the university clinic keeps in touch with the practising profession. There should be avoidance of any aloofness from the general practitioner and of giving any impression that the practice of medicine for a livelihood is an ignoble occupation or one inconsonant with animation by high ideals. Finally, both whole-time and part-time men should not shrink from but should rather invite constructive criticism of their plans and of their work in order that the ideas of all may receive due consideration. Any tendency to suppress such constructive criticism, in my opinion, does harm. I am a great believer in the clarifying effect of frank and free discussion. No good cause need ever fear it. Attempts to smother criticism are as likely as not to be regarded as a confession of weakness. All these and other difficulties that might be mentioned are natural in the new situation in the clinics, but they are not insuperable.

The whole-time plan of organization of clinical departments is as yet so new that it would be premature to prophesy just what its effect ultimately will be upon medical education. I believe that it is a step in the right direction, and that it has come to stay, though I feel certain that it will be some time before we shall have learned how best to adapt it to the needs of single institutions. If faculties will remember what a university really stands for, and will then

arrange conditions in the way best suited to approach true university ideals, taking care not unduly to restrict the free development of the personalities of the scholars, they should have but little difficulty in arriving at a satisfactory solution of the problems of clinical teaching. Iron clad uniformity, rigid schemes and Prussian beds have no place in liberal institutions. That institution will do best that finds out how best to make use of the different talents and temperaments that it finds available. Men are more important than systems. A whole time square peg should not be forced into a part-time round hole, and the personality that can be most useful in a part time position should not be subjected to whole time limitations. May not a judicious flexibility be found, here as elsewhere to be better than a doctrinaire rigidity?

Curricula in the medical schools demand periodic revision. As certain subjects increase in importance room must be provided for them at the expense of traditional courses that may safely be curtailed. Thus advances in biochemistry necessitate the establishment of metabolic clinics and of courses in endocrinology. Institutes of therapy should be set up alongside of our diagnostic institutes. Certain subjects like neurology and especially psychiatry have not yet been adequately provided for except in a very few of the medical schools. Nervous and mental diseases are very prevalent maladies. One of the crying needs at the present time is for a well endowed psychiatric institute in every university medical school.

Another phase of medical education that the future must take care of is that of graduate instruction. We must supply (1) continuation schools for practitioners who wish to do graduate work, (2) departments in which men after graduation can be thoroughly trained in the several medical and surgical specialties, and (3) opportunities for higher research work in all the medical sciences. There is a growing tendency to provide the latter in institutions for medical research separate from the universities. Though there is a place for such separate institutions, it is extremely important that the medical departments of the universities shall not be deprived of adequate research facilities.

The flow of graduate students that once was directed almost entirely toward Europe has now definitely turned toward our medical schools. And, as yet, we are utterly unprepared to receive it.

#### THE FUTURE OF MEDICAL PRACTICE

With the growth of medical science the reform of medical teaching, and the elaboration of clinical technique, many new problems of medical practice have to be solved.

Among these new problems the relation of the general practitioner to the specialist is one of the most difficult. Though the general practitioner is as necessary as ever, it is more diffi-

cult now than formerly for him to answer the demands that are made upon him. Surgeons and specialists when needed should of course be chosen by the family physician. Unfortunately, patients often select their own surgeons and their own specialists, and too often they think they require the help that one specialist offers when in reality they need that of another.

In obscure cases, the value of a general diagnostic survey by an internist co operating with a group of medical and surgical specialists is now recognized. This group method of diagnosis and the group method of therapy promise to give patients the benefits of specialization without its disadvantages, provided there be proper integration of the work done. I have dealt elsewhere with the difficulties and dangers that confront the group method of practice but that these will be overcome, and that the method has come to stay, I feel sure.

Another practical problem lies in the fact that the costs of modern medical education and the standards of living now required of professional men and their families make it difficult for sparsely settled rural districts to obtain adequate medical service. The financial rewards of practitioners in many of these districts are incompatible with the outlay required for the long education of the medical student. Hence the tendency among recent medical graduates has been to settle in the cities and large towns. Relatively few are willing to practice in the country. How this problem of rural medical service is to be solved remains to be seen, but the medical profession should set to work to solve it and at once. It seems to me probable that this is a place in which one form of state medicine may properly begin. It might be wise in some places to build county hospitals, man each hospital with general practitioners, an expert internist, an expert surgeon and a group of essential specialists, engage a supply of public health nurses and organize a motor service to care for the county area. The staff could be salaried and the cost met by fees supplemented by taxation. It seems likely that state medicine in one form or another is coming and if it has to come at all, would it not be well for the medical profession to see to it that its beginnings should be such as are best suited for the welfare both of the public and the medical profession. Unless medical men foresee urgent needs of the sort mentioned and meet them, we may have imposed upon us some wholesale form of state medical service such as oppressed both the public and the profession in Germany and in England before the war. It would be most unfortunate should such premature and badly organized attempts be made in the United States. The medical requirements of the public must be duly considered. They should be early recognized by medical men and a campaign of education inaugurated with the purpose of satisfying them in the best possible way.



### THE FUTURE OF PREVENTIVE MEDICINE

As the medical sciences have advanced, it has become ever clearer that, in the future, medicine will be largely preventive in function. As time advances, humanity will find out how to secure well-born children, and how to control the environmental influences so that not only disease will be largely prevented but also more and more members of society will enjoy an abounding vitality with a minimum of discomfort. To provide this happier future for human society is the task of public and personal hygiene.

We have learned already how to prevent the spread of many infectious diseases that formerly caused large epidemics. Thus small-pox, Asiatic cholera, bubonic plague, typhoid fever, typhus fever, yellow fever and epidemic dysentery are definitely preventable. Malaria and hook-worm disease are also subject to control. Sooner or later we shall discover how to prevent the spread of the exanthemata. The prevention of acute respiratory diseases (pneumonia, influenza) and diseases like poliomyelitis and epidemic encephalitis are more difficult problems but I have confidence that the human brain will yet solve them. Much too, has been done already in the direction of prevention of tuberculosis and of venereal diseases, thanks to the advances in knowledge and to the untiring activities of associations formed for the study and prevention of these diseases. Cancer can often be recognized early and operated upon or treated by radium at a time when treatment can be successful. An association is busily engaged in educating the public to the importance of the very early recognition of malignant growths.

As yet but little has been accomplished, however, by way of prevention of the degenerative diseases of later life (arteriosclerosis, myocardial degeneration, chronic Bright's disease), and much work must be done before we shall learn how to prevent them. We have in our hands, however, data regarding the causation of rheumatism, arthritis and valvular diseases of the heart that make it probable that these diseases could be in large part prevented if the knowledge could be systematically applied.

The appalling mortality that formerly prevailed among infants is rapidly being overcome through a dissemination of knowledge of their causes through the activities of the Association for the Prevention of Infant Mortality. Endemic goiter will not develop in goiter areas if small doses of sodium iodide be administered at intervals. The cost of prevention is only a few cents per school child.

A very great task lies before us in the prevention of insanity, of mental deficiency, and of psychoneurotic states. It is astonishing how negligent we have been in this country in attacking neuropsychiatric problems. The medical profession is in part to blame for this negligence, for the medical men have not been as interested as they should have been in psychology and psy-

chiatry. But in the near future all this will be changed. Psychology and psychiatry will soon be taught to every medical student, who will study defectives, psychotics and psychoneurotics in the hospital of the medical school just as he now studies the infectious diseases, the diseases of the vascular system, and the diseases of the digestive apparatus. The National Committee for Mental Hygiene has made good progress in surveying the whole country for the incidence of mental disorders and mental defects, and it is doing much to stimulate interest in making adequate provision for people who suffer from mental maladies, and in instructing people regarding their prevention. Schools of hygiene are being established and the medical men in charge of them will doubtless be wise enough to see to it that mental hygiene is studied and taught along with the other forms of hygiene that are dealt with in such schools. This morning's papers report from England a great gift by Sir Edward Cassell for the foundation and endowment of a sanatorium for the treatment of functional nervous diseases. Would that some wealthy American in each of our states could see his way clear to emulate this example.

Finally, it is reasonable to predict for the near future a great expansion of the United States Public Health Service and of the State and City Departments of Health throughout the country. Health centers with Red Cross support will soon be springing up everywhere. The number of medical men and of trained nurses that will be needed in this work of protection of the public health is appalling to think of. One scarcely sees how they are to be provided. I think it likely that a dilution method will have to be resorted to. A relatively small number of highly trained men and women could make use of a very large number of persons who can be trained for certain special but limited tasks. It is difficult to see how in any other way a personnel of the necessary magnitude can be supplied.

### CONCLUSION

Within the time-limits of this address it has been possible to give only a cursory sketch of the probable directions of medical advance in the near future, but I have said enough to indicate at least the magnitude of the tasks that lie before us. The accomplishment of these tasks will depend upon (1) suitable plans for the advancement of the medical sciences, (2) the making of proper provision for medical education, (3) the reorganization of medical practice in consonance with public needs, and (4) the realization of some of our ideals of prevention.

In financing this great work we can, I feel sure, count upon the hearty co-operation of an enlightened public. It is our duty as members of the medical profession, and especially the duty of family practitioners, to take pains to educate the public regarding these needs of the coming medicine and to urge laymen to do their part in hastening the advent of the better conditions that can be visualized.

# Medical Society of the State of New York

## ANNUAL REPORTS

1920

### ADDRESS OF THE PRESIDENT

*To the House of Delegates  
Greetings*

It is obvious that in this period of reconstruction of our institutions the Practice of Medicine is not escaping the vision of our so called reformers. At no time in the past history of our State Society has the need for a more militant body presented itself. The shadow of portentous events is upon us. The profession, to be recognized, must speak with one voice. The individual must relinquish his personal views for that of the majority. When we consider the fact that each year we have to meet the Anti-vivisection, the Chiropractic and the various other Cult bills, to say nothing of the new attempts to socialize our profession, it necessarily means that we must awaken from our apathy.

Various County Societies of the State, no longer depending on the State Society for its function, so far as the economics of our profession is concerned, have organized independent guilds to combat the menacing legislation appearing at Albany each year. This brings about a desultory method of approaching a solution which, to be successful, must, in the final analysis, reside in the parent body.

Because of lack of funds our Society has not properly functioned from the economic standpoint. We forget that our needs must keep pace with the progress of the times. The dues which have been in vogue were adequate for the sustenance of the Society years ago, but to meet the present conditions and the new environments necessarily means a radical increase. Because of these reasons, I recommend the adoption of the change of the By-Laws which makes the dues Five Dollars per annum.

My predecessor, Dr. Midill recommended to the House of Delegates, last year, the establishment of an Executive Secretary. While your body adopted this recommendation, the Council through lack of funds, was unable to fulfill the action of the House of Delegates. A special committee of the Council will present its report relative to this matter in more detail. Permit me to again recommend that provisions be made whereby the office of Executive Secretary be promptly established.

When one studies the support given by the public to the various cults and mediums that spring before the legislature each year it causes us to pause and reflect. We wonder how they succeed in obtaining such surprising support. I am of the opinion that a large factor in the product of their success lies in our own inertia. While the profession holds itself aloof, these groups take the public into their confidence, by their cunning methods they are apparently successful in obtaining many new recruits to their cause each year. In our Constitution defining the purposes of our Society, "Article 1 reads, 'to enlighten and direct public opinion in regard to the great problems of State Medicine'." With this end in view the Committee on Arrangements have planned that on Sunday, May 1st, about one hundred of the clergy in Brooklyn will vacate their pulpits, and in these vacant pulpits physicians and surgeons will discuss Preventative Medicine and the problems of Health. I recommend that an expression of approval and encouragement by the House of Delegates be recorded, to the end that all future meetings of this Society, when possible, will include a similar program.

One of the pleasing traditions of the office of the President is visiting the District Branches of the State Society during his term of office. It was my great privilege to visit all of the District Branches save one. Through personal observation and visitation I am enabled to report that they are most generously attended and the enthusiasm exhibited suggests their great usefulness as branches of the parent body. The scientific programs were of the highest character the discussions liberally contributed and the economic questions of medicine prominently discussed.

Before closing this report permit me to express to you my deep appreciation for the privilege you have accorded me to serve the Society in the capacity of its President, and to acknowledge my gratitude to the Council, the various committees and the district branch officers for their uniform courtesies and co-operation.

Respectfully submitted

J. RICHARD KEVIN,  
President

April 15 1921

## ADDRESS OF THE SPEAKER

It has occurred to the Speaker to devote his address on this occasion to the consideration of the Constitution and By-Laws of the Medical Society of the State of New York, and especially to those provisions which will be helpful in the work of carefully and expeditiously carrying out the duties that are ours, as members of the House of Delegates

In the first paragraph of the Constitution we find the purposes of the Society stated as follows "To federate and bring into one compact organization the medical profession of the State of New York, to extend medical knowledge and advance medical science, to elevate the standard of medical education and to secure the enactment and enforcement of just medical laws, to promote friendly intercourse among physicians, to guard and foster the material interests of its members, and to protect them against imposition, and to enlighten and direct public opinion in regard to the great problems of State medicine"

This Constitutional provision makes it the business of the Delegates to keep informed as to the work of the graduate, the post-graduate and the research institutions of the State, and to aid in protecting them from selfish propaganda and misguided legislation that would lower the standards of medical education and licensure, and hamper medical research

The further purposes suggest that the activities of the State and local Departments of Health, the molding of public opinion in harmony with the interests of the medical profession, the medical needs of the smaller and larger communities of the State, and the protection of the people from being exploited by quacks, charlatans and pretenders of all sorts, are problems which should be carefully studied by the Delegates, and finally a policy should be adopted which can be carried out by the executive body, the Council

The authority of the House of Delegates is expressed in the section which states that it shall be the legislative body of the Society and shall be charged with the general management, superintendence and control of the Society and its affairs, and shall have such general powers as may be necessarily incident thereto. It may delegate to the Council power to carry out its resolutions and orders. There is an important limitation placed upon the power of the House of Delegates in the matter of the expenditure of funds. The section reads "No funds of the Society shall be appropriated for any purpose except by authority of a resolution of the Council, nor shall any indebtedness be incurred by officers, members of committees or members of the Society until the same shall have been approved by the Council"

In regard to the meetings—the House of Delegates may meet from time to time, or, may adjourn from time to time, as may be necessary to complete its business. There are no

limitations, except that its meetings shall conflict as little as possible with the annual meeting of the Society. At any meeting thirty delegates shall constitute a quorum

In order that the time of the House of Delegates may be conserved it would be well if the latter part of Chapter XI, Section 1, of the By-Laws, which relates to the Society, be modified by adding the word "delegates" after the word "house," and then adopted as a standing rule

"And no member shall speak upon any question before the *House of Delegates* for longer than five minutes, nor more than once on any subject, except by consent"

"Chapter III provides that The House of Delegates shall make careful inquiry into the condition of the profession in each county of the State, and shall have authority to adopt such methods and measures as it may deem most efficient for building up and increasing the interest in such county societies as already exist"

The Councillors are charged with somewhat similar duties, as stated in Chapter VI "Each District Councillor shall visit the counties of his district at least once a year. He shall make an annual report of his work and of the condition of the profession in each county in his district at the annual session of the House of Delegates. The necessary traveling expenses incurred by each councillor in the line of his duties as herein defined may be allowed by the Council on a proper itemized statement, but this shall not be construed to include his expense in attending the annual session of the Society"

The House of Delegates has heretofore given little or no attention to the work of the Councillors, although its importance is emphasized in two prominent places in the By-Laws. The reports of the Councillors have always been received as printed without comment by the House of Delegates, but this year they have been asked to present the important points of their reports in person. The House of Delegates should be aware that the Councillors could be important factors in arousing the profession in the counties of their districts, along lines that would increase the membership of the Society and at the same time securing concerted action on medical legislation

The Councillors are officers of the Society, and as such are members of the Council

They should be the means of better organization in the eight District Branches of the State. The Council should be authorized to assume control in order to give helpful encouragement to the Councillors in their extended activities. This may be effected by adopting the following resolution

The Council shall be charged with the duty of carrying out the Constitution and By-Laws of the Society and all rules, regulations and orders of the House of Delegates

It may be inferred that the Council already has such power under a proper interpretation of the

Constitution and By-Laws. But it would be better to have it stated in positive terms.

Article V says that "The Council shall be the executive body of the Society. It shall consist of the officers of the Society, except the Assistant Secretary and the Assistant Treasurer, and of the chairman of standing committees. The retiring President shall be a member of the Council for one year after his term of office expires. The Council shall be the Finance Committee of the Society and shall have such additional powers and duties as the By-Laws may prescribe. It may adopt rules and regulations for its own government and for the administration of the affairs of the Society, within its control not repugnant to the Constitution and By-Laws of the Society or to the rules and regulations which may be adopted by the House of Delegates."

Every section of the State is, and always will be represented in the Council by the Presidents of the eight District Branches who are Councillors. The Council is empowered to fill any vacancy which may occur in any elective or appointive office not otherwise provided for. The By-Laws provide that it shall meet once during May and September, and special meetings may be called upon request of five members or upon the call of the President. The cost of a meeting of the present Council in New York City provided all the members attend, is \$306.86 (Central Office estimate); the members from the counties in the Greater New York are not included in this estimate of railroad fare. The actual expense of a meeting is about \$150. There are twenty-two members of the Council and seven members constitute a quorum. Recently the Council decided to create an Executive Committee, consisting of seven members, two of whom shall consist of the President and Secretary and the other five members shall be elected by the Council. This Committee shall hold meetings during the first week of each month and shall meet at other times on call of the chairman or any two of its members. It shall have supervision of the finances of the Society, and no funds shall be used or appropriated nor shall any indebtedness be incurred except upon approval of the Executive Committee or of the Council. It shall control and supervise all publications and their distributions. It shall have power to audit and to cause an audit to be made by a certified public accountant of the accounts of the Treasurer, Secretary, and all agents of the Society receiving or disbursing any of the funds of the Society.

It shall act as adviser to the Legal Council in all matters pertaining to the Society.

It shall approve all constitutions and by-laws of county societies and all amendments thereto before reporting them to the Council for action.

The referendum as applied to the Council is a great saving of valuable time and expense in securing action on all such matters as amend

ments to constitution and by-laws of county societies which have been approved by the Executive Committee. It permits the chairman of the executive committee to order or any two members of the committee can require, the chairman to order referendum vote on any question before the executive committee.

The poll shall be closed after five days following the mailing of the question to the members of the Council. The vote may be by mail or telegram. All the provisions are the same as the article on Referendum in the Constitution, but modified to apply to the Council.

The Executive Committee may adopt rules and regulations for its own government and for the administration of the affairs of the Society not repugnant to the Constitution and By-Laws or rules and regulations of the House of Delegates or of the Council. In case of vacancy in the Committee the President shall appoint a successor.

We feel assured that the Council is now organized for business, is prepared to carry out efficiently any policy or plan of action authorized by vote of the House of Delegates.

*Standing Committees*—The good work they have done for the Society as embodied in their reports, is a monument to their self-sacrifice and devotion. That they may receive greater aid and encouragement and with the view of harmonizing their activities, the Council has asked that all standing and special committees of the Society shall be under their direction and control while the House of Delegates shall not be in session.

Reference Committees, Chapter VII, Section 9, provides "Immediately after the organization of the House of Delegates at each annual session, the Speaker shall appoint from among the members present such committees as may be deemed expedient by the House of Delegates. Each committee shall consist of five members. These committees shall serve during the session at which they are appointed. To the appropriate committee shall be referred resolutions, measures and propositions presented to the House of Delegates before final action shall be taken, unless otherwise unanimously ordered by the House of Delegates. Each reference committee shall, as soon as possible after the adjournment of each meeting, or during the meeting if necessary, take up and consider such business as may have been referred to it, and shall report on the same at the next meeting or when called on to do so. Three members shall constitute a quorum."

A sufficient number of reference committees should be appointed to insure careful consideration of the reports, resolutions and propositions presented to the House of Delegates. Everything so referred should be reported back to the House of Delegates and if the committee is not ready to report when called upon the House has the right to discharge the committee from fur-

ther consideration of the subject. The reference committees do not obstruct the work of the House but are valuable aids in the study of important questions, and are most helpful in contributing to safe and sound judgment as expressed by the vote of the House of Delegates. It would expedite the work if all resolutions were presented in duplicate one for the Secretary or the official stenographer, and the other for the reference committee.

The speaker has requested that a stenographer and typist be present in an anteroom to serve the members of the House of Delegates for this purpose.

In closing, I cannot refrain from taking advantage of this opportunity to express to the House of Delegates my appreciation of the honor conferred in electing me the first speaker of the House. I am aware of the obligation I assumed in accepting the office, and it is my earnest wish to serve this House as its presiding officer in a way that will call out your sympathetic cooperation and encouragement, which is necessary to develop the best service I am able to offer you. I am indeed of your help to properly perform the duty you have assigned to me.

The House of Delegates represents and acts for the medical profession of the State of New York because more than a good working majority of the profession are members of the Medical Society of the State of New York and *ipso facto* of the counties that have elected you as their delegates.

It is sound American doctrine that the majority should rule. Then let us rule wisely and well. It is expected of the carefully selected Delegates of the medical profession in annual convention assembled to give to the profession of the State something eminently worth while as a result of their deliberations.

Never before in the medical history of this State have there been more vital problems affecting medical economics such as the relation of the physicians and the practice of medicine to the community, than those which are demanding our immediate thought and action.

We know that this House of Delegates has the power to determine the policy of the State Society on all these questions and *pari passu* it is authorized to delegate to the Council the power and authority necessary to effectively carry out the pre-determined policy of the House of Delegates.

May our minds trained in scientific accuracy search out and marshal the facts which are needed to produce concerted action on the part of the profession, and which will help to secure that kind of public support which is best expressed in right legislation.

Gentlemen of the House of Delegates, I thank you for the privilege of acting as your Speaker.

E. ELIOT HARRIS,

Speaker

## REPORT OF THE SECRETARY

### To the House of Delegates

In compliance with Section 3, Chapter VI, of the By-Laws, the Secretary submits the following report for the year ending December 31, 1920

Membership, December 31, 1919	8,298	
New members, 1920	680	
Reinstated members, 1920	237	
	—	9,215
Deaths	125	
Resignations	88	
Expelled	0	
	—	213
		9,002
Dropped for non-payment of dues, December 31, 1920	461	
Dropped for non-payment of tax, December 31, 1920	688	
	—	1,149
		7,853
Elected after October 1, 1920 and credited to 1921		270
		8,123
Membership, January 1, 1921		8,123
Membership, January 1, 1920		8,571
Membership, January 1, 1919		8,268
Membership, January 1, 1918		8,339
Membership, January 1, 1917		8,287
Membership, January 1, 1916		7,940

The decrease in members on January 1, 1921, was due to the dropping of six hundred and eighty-eight who had not paid the special per capita assessment. Four hundred and eighty-eight of these paid in January and were reinstated. The membership on April 15, 1921, therefore, as compared with that of the preceding year, showed an increase of one hundred

The increase of new members during 1920 was three hundred and fifty-eight over the preceding year, and is the largest number of new members ever admitted in one year.

The honor list of counties whose membership shows both dues and taxes paid is as follows: Columbia, Essex, Greene, Ontario, Oswego, Richmond, Rockland, Schoharie, Warren, Washington and Yates.

April 15 1921

### CONSTITUTION AND BY-LAWS

I wish to call the attention of the House of Delegates to the amendment to the Constitution, Article VII, Section 2, introduced at the last annual meeting, increasing the State annual per capita assessment from \$3.00 to \$5.00. It is essential that this be passed. I therefore recommend its enactment.

This increase in the dues cannot become effective until 1922; therefore I recommend that the House of Delegates levy a special per capita tax for the year 1921 similar to the one levied in 1920.

The response of the members to the special per capita tax levied in 1920 has been most gratifying and today there are less than one hundred and eighty members whose tax has not been received.

I wish to call attention to the proposed amendment to the Constitution, Article IV, in regard to the apportionment of the delegates from County Societies. This amendment which was introduced last year and referred to a committee provides for a fairer form of representation than the one now in force. I recommend its adoption.

### LEGAL DEPARTMENT

The reorganization of the Legal Department is the most important and urgent subject which will come before the House of Delegates. The office of Counsel of the Society has become influential and important.

The Counsel has other duties besides those of settling and trying cases. The officers constantly need his advice; letters are referred to him, opinions are asked of him, and advice sought from him. He should be present at the regular Council meetings and conversant with the work of the Executive Committee. When these duties are considered it will be seen that the salary of the Counsel must be commensurate with the work and therefore greater than it has been. The Society should have the best legal talent and should be prepared to pay for it. No new financial obligations should be incurred until a sufficient sum shall have been appropriated to maintain a first class legal department. The Society should have such a department, and to ensure its efficient functioning it should be directly under the control and supervision of a special legal committee.

I, therefore, recommend that a committee be appointed to consider the establishment of such a legal department, and that this committee suggest an appropriation requisite for the maintenance of the department. To avoid any suggestion of favoritism I recommend that this committee suggest name of Counsel.

### COMMITTEE ON LEGISLATION

The Committee on Legislation has assumed a position of great importance in the Society. It has in the past year accomplished much and if given the proper recognition and aid can be invaluable to the Society. It should be given more power and wider scope. It needs clerical help and an appropriation. I therefore, recommend that ways be considered to strengthen and assist this committee and that an appropriation be made to provide a permanent clerk during the sessions of the legislature.

### THE EXECUTIVE SECRETARY

The Council was justified in its action in deferring the appointment of an Executive Secretary. Although it is desirable to have an Executive Secretary there are two essentials necessary to the appointment—a big man and a big salary.

### THE JOURNAL

The JOURNAL has been much improved and strengthened. It would be a great mistake to make any change in its management. If the finances of the Society warrant the outlay it would be advisable to enlarge the JOURNAL.

### EXECUTIVE COMMITTEE OF THE COUNCIL

An important step taken by the Council during the year was the creation of an Executive Committee, for the more efficient administration of the affairs of the Society. This committee meets monthly, has supervision over the finances and publications of the Society, and acts as advisers to the legal Counsel. It will in no way interfere with the regular meetings of the Council.

### DISTRICT BRANCHES

I had the pleasure last fall of attending all but two of the annual meetings of the District Branches. The District Branch meetings are important and should be encouraged. In addition to the scientific programs presented, they bring together the members from the various parts of the State and give opportunity for discussion and interchange of ideas.

Respectfully submitted

EDWARD LIVINGSTON HUNT,  
April 15 1921 Secretary

## REPORT OF THE TREASURER

HAPLOW BROOKS, *Treasurer*, In Account with THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

Dr

Cr

CASH RECEIPTS, YEAR ENDED DEC 31, 1920	
Balance, January 1, 1920	\$10,348 11
Annual Dues in Arrears	\$204 00
Annual Dues in 1919	858 00
Annual Dues in 1920	24,812 00
Annual Dues in 1921	810 00
Journal Advertising	11,491 24
Journal Subscriptions and Sales	323 90
Directory Advertising, 1918	70 00
Directory Advertising, 1919	2,781 20
Directory Sales, 1919	999 00
Directory Sales, 1920	1,039 75
Directory Advertising, 1920	3,164 76
Special Per Capita Charge	15,074 00
Committee on Arrangements	
Commercial Exhibits	2,862 50
Annual Banquet	2,560 00
Interest on Bank Deposits	365 91
Clerical Work	163 05
	<u>\$67,579 31</u>

CASH PAYMENTS, YEAR ENDED DEC 31, 1920	
Rent	\$1,425 00
Legal Expenses	9,600 00
Insurance	5 70
Addressograph	817 50
District Branches	347 77
Committee on Legislation	209 66
Committee on Medical Economics	5 00
Journal Publication	15,739 59
Journal Expense	149 37
Journal Salaries	1,888 77
Journal Commissions	2,109 04
Journal Discounts	322 13
Directory, 1919—Printing	5,936 20
Directory, 1919—Incidentals	715 52
Directory, 1919—Commissions	77 05
Directory, 1919—Discounts	33 67
Directory, 1920—Printing	8,054 25
Directory, 1920—Incidentals	1,167 89
Directory, 1920—Salaries	3,107 79
Directory, 1920—Commissions	582 81
Directory, 1920—Discounts	78 95
Accountants	250 00
Annual Meeting, General Expenses	2,258 73
Rooms for Exhibits and Section Meetings	1,067 00
Annual Banquet	2,895 14
Salaries—Secretary	500 00
Salaries—General	3,598 50
Postage—Directory	529 01
Postage—General	323 81
Traveling Expenses—General	291 98
Traveling Expenses—A M A	2,161 47
Telephone	135 27
Stationery and Printing	734 64
Accounts Payable—Dec 31, 1919	861 18
	<u>\$67,980 39</u>
Balance on Deposit with Guaranty Trust Company, December 31, 1920—General	\$9,480 96
Committee on Medical Research	465 47
Petty Cash	60
	<u>9,947 03</u>

\$77,927 42\$77,927 42

ANNUAL DUES, 1920			
County	Amt Paid	County	Amt Paid
Albany	\$558 00	Livingston	120 00
Allegany	66 00	Madison	99 00
Bronx	1,107 00	Monroe	981 00
Broome	177 00	Montgomery	153 00
Cattaraugus	78 00	New York	8,198 00
Cayuga	171 00	Niagara	219 00
Chautauqua	276 00	Oneida	339 00
Chemung	162 00	Onondaga	813 00
Chenango	42 00	Ontario	232 00
Clinton	114 00	Orange	303 00
Columbia	123 00	Orleans	72 00
Cortland	93 00	Oswego	141 00
Delaware	56 00	Otsego	129 00
Dutchess	273 00	Queens-Nassau	573 00
Putnam	1,884 00	Rensselaer	480 00
Erie	60 00	Richmond	186 00
Essex	54 00	Rockland	96 00
Franklin	54 00	St Lawrence	192 00
Fulton	54 00	Saratoga	156 00
Genesee	54 00	Schenectady	324 00
Greene	54 00	Schoharie	63 00
Herkimer	54 00	Schuyler	36 00
Jefferson	20 00	Schoharie	93 00
Kings	2,880 00	Schoharie	225 00
Lewis	45 00	Suffolk	288 00

ANNUAL DUES, 1920—(Continued)			
County	Amt Paid	County	Amt Paid
Sullivan	63 00	Washington	108 00
Tioga	61 00	Wayne	96 00
Tompkins	171 00	Westchester	810 00
Ulster	180 00	Wyoming	90 00
Warren	102 00	Yates	60 00
			<u>\$25,035 00</u>

ADVANCE DUES, 1921			
County	Amt Paid	County	Amt Paid
Bronx	81 00	Ontario	3 00
Cattaraugus	63 00	Orange	9 00
Chautauqua	15 00	Queens-Nassau	30 00
Cortland	6 00	Rockland	9 00
Erie	54 00	Saratoga	6 00
Essex	3 00	Schenectady	9 00
Franklin	102 00	Steuben	6 00
Genesee	27 00	Sullivan	6 00
Herkimer	81 00	Tompkins	6 00
Kings	99 00	Ulster	3 00
Madison	3 00	Washington	3 00
Monroe	3 00	Wayne	3 00
Montgomery	6 00	Westchester	18 00
New York	153 00		
Onondaga	3 00		<u>\$810 00</u>

Dr

## REPORT OF THE TREASURER—Continued

Cr

Income		DIRECTORY ACCOUNT	
		Expenses	
Advertising—1918 Directory	\$70 00	1919 Directory	
Advertising—1919 Directory	2 883 20	Printing	\$5 936 20
Sales—1919 Directory	1 769 50	Incidentals	715 52
Sales—1920 Directory	\$1 039 75	Commissions	77 05
Sales—1920 Directory (Estimated Unpaid)	200 00	Discounts	33 67
Advertising—1920 Directory	3 164 76		\$6 762 44
Advertising—1920 Directory (Estimated Unpaid)	800 00	1920 Directory	
	\$9 927 21	Printing	\$8 054 25
Cost of 1919 and 1920 Directories	10 355 93	Salaries	3 107 79
	\$20 283 14	Incidentals	1 167 89
		Commissions	582 81
		Discounts	78 95
		Postage	529 01
			\$13 520 70
			\$20 283 14

## JOURNAL ACCOUNT YEAR ENDED DECEMBER 31, 1920

Income		Expenses	
		Expenditures	
Advertising	\$11 319 60	Publication	\$15 739 59
Subscriptions and Sales	323 90	Postage	175 75
	\$11,643 50	Expenses	123 62
Cost of Journal	8 715 40	Salaries	1 888 77
	\$20 358 90	Commissions	2,109 04
		Discounts	322 13
			\$20 358 90

## BALANCE SHEET DECEMBER 31 1920

Assets		Liabilities	
Current Assets		Current Liabilities	
Petty Cash	\$ 60	Accounts Receivable — Credit	
Guaranty Trust Co	9 946 43	Balances	\$527 51
	\$9,947 03	Advance Payments	
Accounts Receivable—		Annual Dues 1921	\$810 00
Journal Advertising	\$1 083 02	Committee on Medical Research	465 47
Accounts Receivable—			1,275 47
Directory Advertising	800 00		\$1 802 98
Accounts Receivable—		Trust Funds	
Directory Sales (Estimated)	200 00	Lucien Howe Prize Fund	\$2 387 53
	2 083 02	Merritt H Cash Prize Fund	1 109 93
Inventory — Directory Catalogue	250 00		3 497 46
	\$12 280 05	Surplus	
Trust Fund Investments		Balance—January 1, 1920	\$7,264 71
Union Dime Savings Institution	\$997 46	Excess of Income over Expenses for 1920	4 499 96
Liberty Loan Bonds	500 00		11 764 67
Mortgage Certificates	2 000 00		
	\$3 497 46		
Fixed Assets			
Furniture and Fixtures	1 287 60		
	\$17 065 11		
			\$17 065 11

Respectfully submitted WOLF &amp; COMPANY Certified Public Accountants

## INCOME AND EXPENDITURES YEAR ENDING DECEMBER 31 1920

Income		Expenses	
Annual Dues—Arrears	\$204 00	Cost of Journal	\$8 715 40
Annual Dues—1919	858 00	Cost of 1919 and 1920 Directories	10 355 93
Annual Dues—1920	25 916 00	Salaries—Secretary	500 00
Special Per Capita Charge	15 074 00	Salaries—General	3 598 50
Clerical Work	163 05	Rent	1 425 00
Interest on Deposits	365 91	Telephone	135 27
Annual Meeting and Banquet		Stationery and Printing	734 64
Committee on Arrangements—		Postage	173 81
Revenue	\$4 165 00	Insurance	5 70
Annual Banquet—Revenue	2 560 00	Auditor	250 00
	\$6 725 00	Legal Expenses	9 600 00
Annual Meeting—		Traveling Expenses—A M A	2 161 47
Expenses	\$2 333 73	Traveling Expenses—General	291 98
Annual Meeting—		Committee on Legislation	209 66
Rooms for Exhibits		Committee on Economics	5 00
and Section Meetings		District Branch Expenses	347 77
Annual Banquet	1 067 00		\$38 510 13
	2 895 14		
	6 295 87		
	429 13	Excess of Income over Expenses	4 499 96
	\$43 010 09		\$43 010 09



## REPORT OF THE COUNCIL

*To the House of Delegates*

The Council of the Medical Society of the State of New York begs leave to present the following report

During the past year meetings have been held on the following dates

March 25, May 22, June 16 and September 3, 1920, in New York City Minutes will be found in the NEW YORK STATE JOURNAL OF MEDICINE, Volume 20, No 10, page 336

December 7, 1920, in New York City Minutes will be found in the NEW YORK STATE JOURNAL OF MEDICINE, Volume 21, No 1, page 31

March 24, 1921, in New York City Minutes will be found in the NEW YORK STATE JOURNAL OF MEDICINE, Volume 21, No 4, page 145

The following resolutions, adopted by the Council at a meeting held on March 24, 1921, in regard to the activities of the committees between meetings of the House of Delegates will be presented for action

WHEREAS, the House of Delegates is the legislative body of the Society, and is charged with the general management, superintendence and control of the Society and its affairs and shall have such general powers as may be necessarily incident thereto, and

WHEREAS, the House of Delegates may adopt rules and regulations for its own government and for the administration of the affairs of the Society, and

WHEREAS, it may delegate to the Council such powers and authority as may be necessary to the efficient administration of the affairs of the Society while the House of Delegates is not in session, and

WHEREAS, the standing and special committees of the Society are subject to the direction of the House of Delegates, and

WHEREAS, the House of Delegates are in session only once during the year, and for the efficient administration of the affairs of the Society it is deemed proper that the House of Delegates shall delegate to the Council the direction of the standing and special committees of the Society while the House of Delegates is not in session,

Therefore, be it Resolved, that all standing and special committees of the Society shall be under the direction and subject to the orders of the

Council while the House of Delegates shall not be in session

Be it Further Resolved, that the Council be charged with carrying out the Constitution, By-Laws and the rules, regulations and orders of the House of Delegates

Respectfully submitted,

EDWARD LIVINGSTON HUNT,  
April 15, 1921 Secretary

## REPORT OF THE COMMITTEE ON PUBLICATION APPOINTED BY THE COUNCIL

*To the House of Delegates*

The Council, at the meeting held in New York City on May 22, 1920, appointed the following Committee on Publication Drs Frederic E Sondern, Edward Livingston Hunt, Joshua M Van Cott, W Meddaugh Dunning and Seth M Milliken, and named Dr Frederic E Sondern as Editor, and Drs Edward Livingston Hunt and Joshua M Van Cott, as Associate Editors

## JOURNAL

The Treasurer's report shows the cost of the JOURNAL to the Society in 1920 to be \$8,715, an increase of \$3,000 over the figures of 1919

This increase is mostly due to the steady increase in the cost of labor and paper during 1920, particularly the latter, and also to the fact that thirteen JOURNALS were published and paid for in 1920, owing to the printers' strike, which prevented the publication and payment for the December, 1919, JOURNAL until January, 1920. It is not due to the loss of advertising receipts, which show an increase over 1919

## DIRECTORY

The Directory was published on time. The cost to the Society, as shown by the Treasurer's books, was \$9,300. This amount has already been decreased \$1,000 by receipts from advertisements and sales received after January 1, 1921, making the actual cost of the 1920 Directory to the Society, \$8,300

The sales show a decrease of about \$200 over those of previous years, but the advertisements show an increase of \$300

The cost of publication for 1921 will undoubtedly be reduced, as although there is no reduction so far in the cost of labor, there is already a reduction of almost 50 per cent in the cost of paper

Respectfully submitted,

FREDERIC E SONDERN,  
April 15, 1921 Chairman

## REPORT OF COMMITTEE ON ARRANGEMENTS

### *To the House of Delegates*

The report of your Committee is largely reflected in the scientific, exhibitional, and entertainment programs already presented for your participation.

The Committee, however, would emphasize two features of the program which are innovations, and are presented solely for their educational value to the community in which the convention is held.

In conformity with the traditions of our profession, the aim of our annual convocations should be altruistic, not autoistic.

We are convinced that the function of our annual conventions should not be circumscribed solely by the personal activities of the physicians who attend. The annual convention affords a unique opportunity to awaken and interest the local community in matters of public health, sanitation and hygiene.

Our convention should be an annual event not merely for the profession, but sought and welcomed by progressive communities for the educational advantages which it confers, and the stimulus for higher civic ideals which it bequeaths to its host.

To crystallize these ideas, your Committee has inaugurated two important features.

First It has planned to make convention week contemporaneous with "health week" for the Borough of Brooklyn. "Health week" will be inaugurated by fifty "health talks" on Sunday, May 1st, in churches selected to represent community centers.

Second The usual scientific exhibit has been widened in scope, and will be in the fullest sense a health exhibit. While it retains all of the features which make a personal appeal to the physician, it has extended its activities to include every department of health and hygiene. Thus our exhibit will stimulate the interest of the public and profession in a way that will be mutually helpful.

Other features of the program need no comment as they conform to established precedent.

The innovations are placed on trial. Success can be accredited only if the new paths retain the high levels and lead our State Society into larger fields of useful endeavor.

WILLIAM FRANCIS CAMPBELL,

*Chairman*

April 15, 1921

## REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS

### *To the House of Delegates*

The work of your Committee has now extended over several years and has touched upon most of those phases of our present-day complex social life which affect the medical profession.

As one result of these studies we are able to assure the Society that the science and art of medicine are making equal progress with other activities of civilization.

We have previously withheld this assurance because there have been so many schemes for so called betterment of medical conditions put forward that we refrained from assuming so definite a position until sure of our ground.

We have been importuned and have importuned others, to join in constructive criticism of such schemes as Health Insurance and Health Centers. We have studied these plans and the conditions which they were presumed to help, or which they assumed to exist, actuated only by the desire to get out of them, or put into them, those things which were for the good of the public and the medical profession.

The result has been an *impasse*. We find that these plans do not permit of constructive criticism because they fundamentally obstruct the normal development of medicine.

It appears to us, and we hope that it will be apparent to you and to the honest intentioned proponents of this type of legislation, that this being the case the medical profession can find no justification in any other attitude than unequivocal opposition.

We hope it will be as apparent to the proponents of such legislation that the conclusions of the Committee that medicine is making as satisfactory progress as is possible, also means that the medical profession is the only group capable of directing its own activities and that public health and public welfare will best be preserved and improved by the medical profession represented in such bodies as the Medical Society of the State of New York and its component parts.

Aside from other vicious effects the pessimism regarding the value of medical services and the future of medicine which these legislative efforts tend to produce has a most disastrous effect upon the public by indirectly aiding the propagandists of quackery. No one criticizes the quack, and he fattens upon the discredit cast upon the efforts of the medical profession.

It is unfortunate that much of the adverse criticism has recently emanated from the State Department of Health and has found its way into public print. In order that the department's propaganda for Health Centers should

have the greatest force, criticism of the rural medical practitioners has been repeatedly made and certain statistics drawn upon to show the needs of some of the outlying communities

These statistics form the chief argument of Commissioner Biggs, but scarcely stand analysis. He states that in the so-called rural districts of New York there were 2,972 practising physicians in 1911, while in 1919 there were only 2,569. During this period there was a 7 per cent increase in population. This is a decrease of 14 per cent, or a relative one of 15 per cent in the number of medical practitioners.

On the surface there would appear to be a loss of medical service in these districts, but during the period between 1911 and 1919 the automobile and good roads had increased the efficiency of the rural physician much over 100 per cent. The same agencies have enabled the rural population to obtain the services of city physicians and of hospitals and clinics. So that the facts are that these communities are much better cared for than they were.

It is probable that if the majority of the physicians practising in these districts had not been older men the decrease would have been greater. It could be greater and the communities still be well cared for.

Another phase of the subject of the supply of medical men is the size of the medical student body. For about the time above referred to there has been a comparatively small number of applicants for admission to our best medical schools.

This was due to two causes: the lack of demand for doctors due to the 100 per cent increase in activity of those already well established in practice, and the increased educational requirements for admission to schools of medicine. It is only since a large number of young men left the rural districts for military service that this lack of supply of medical students has made itself felt.

It will, of course, only be a few years before the older men now in practice will have ceased activities and the apparent shortage of physicians become real. The law of supply and demand has already begun to take care of such an emergency.

One of the largest of our medical colleges, which has been graduating classes of about 100 men, last year had about 600 applicants for admission to the freshman class. Only a portion of these could be admitted and they were selected on their academic standing.

In the face of these conditions there certainly can be no cause for anxiety that a suffi-

cient number will not be available, or that the type of service will not be of the best.

It is to be hoped that over-zealous officials and enthusiastic reformers can be brought to consider the actual condition before endeavoring to foist unwise medical legislation upon the public.

*Health Centers* Considering the Health Centers Bill specifically, we can find no excuse for its passage. It is vicious in its purpose, tending to centralize certain powers in the State Department of Health, which can only develop to their fullest fruition as functions of the individual physician acting alone or as a member of a group.

We believe that it is wise that laboratories should be standardized, but we do not consider that the actual work of the laboratories or the activities of the physicians who specialize in laboratory work should be in any way controlled by the State Department of Health.

We believe that the State should assist in establishing laboratories in sections of the State where they may be needed, but we also believe that such financial aid should be discontinued as soon as the laboratories become sufficiently self-supporting. What is true of the laboratories is equally true of other phases of medical practice.

*Narcotic Law* We recommend that the State Department of Narcotic Drug Control be abolished.

*Medical Practice Act* We indorse the Medical Practice Act as amended and introduced at this session of the Legislature.

*Health Insurance* Another Health Insurance Bill has been introduced this year. We recommend continued opposition to this measure.

During the year this Committee has communicated with all of the County Societies in reference to the above mentioned Health Centers Bill. The wisdom of a meeting of representatives of the County Societies and this Committee was considered. Replies received from a large majority of the County Societies showed such strong opposition to the bill that this Committee considered itself sufficiently informed regarding the wishes of the membership of the State Society and, there being a shortage of funds to cover the expenses, did not call the meeting.

Respectfully submitted,

HENRY LYLE WINTER, *Chairman*,  
ARTHUR F. CHACE,  
GEORGE W. KOSMAK,  
EDWIN MACDONALD STANTON,  
HENRY G. WEBSTER

April 15, 1921

## REPORT OF THE COMMITTEE ON PUBLIC HEALTH AND MEDICAL EDUCATION

### *To the House of Delegates*

The Committee on Public Health and Medical Education begs herewith to report, that it has watched with interest the various bills pending in the Legislature during the year just past calculated to affect public health and medical education. Fortunately, they have either all died in Committee been vetoed by the Governor or failed to become a law.

We are growingly impressed with the view that the relation of the Medical Society of the State to public health cannot be summed up in terms of the official work of its committees, it is even more individual than in the days of the first president Dr McClelland and his limited number of co-workers whose noble work stands out in bold relief as a lesson for us all.

In the last analysis, every physician in the State should regard himself a public health officer whose efficiency of work in his own community must depend largely upon his ability, probity and personal unselfishness.

One hundred and fifteen years ago, when money was scarce and travel difficult and tedious the founders of our State Society were imbued with the necessity and duty of protecting the health of the people and they made great personal sacrifice of money and time to accomplish the organization of a body of professional gentlemen, whose activities would ensure to the public the enactment by the Legislature and enforcement by the proper authorities of laws calculated to achieve these ends.

As a result of these early endeavors and the untiring work of over a century, the State of New York stands historically in the lead in placing upon its statutes wise laws relating to public health, regulation of medical practice and advancement of medical education.

But times are ever changing, business methods are becoming more scientific the public more exacting and the general principle of centralizing activities has come to stay.

The question may be asked whether we doctors are really anxious as individuals, to live up to the traditions of the past or whether we are not becoming swamped in the maelstrom of present day commercialism, as a direct result of the feverish quest for a more luxurious living? If a reliable analysis could be made of the situation it would doubtless obtain that the great mass of the rank and file in medicine to day cherishes the same high ideals for the public weal that moulded the character and directed the activities of our forebears.

The difficulty at present seems to lie not so much in lack of desire on the part of medical men, as a whole to do their share of public duty as in lack of proper directive.

The mechanism of ordinary existence is so much more complicated, in these times, than it was even a generation ago, that public work, if it be done at all can only be accomplished under a minimum of friction which means exact knowledge of what and how to do.

The average physician is not schooled in the duties of an executive body because his time is spent in the engrossing task of daily rounds. But there are many things he could and would gladly do, in his constant contact with people who love him and whose confidence he holds if he only knew just what was required of him. To give this knowledge seems to have been one of the great aims of the founders of the State Society and this function has been maintained throughout the history of the Society insofar as has been possible under its Constitution and By-Laws.

With the House of Delegates meeting once annually, and the Standing Committees without power of initiative excepting under the direction of the House of Delegates, it has seemed to us for a long time that the governing body of the Society was sadly lacking in a flexibility sufficient to keep it in effective touch with the great body of the medical profession in the State.

The Council, being the 'executive body of the Society' has made a distinct advance, in creating an Executive Committee from its own number to meet at frequent intervals at the office of the Society in New York with power to transact business for the Council.

This action of the Council will go far towards overcoming the difficulties encountered in meeting sudden emergencies in the Legislature involving important questions of public health and medical education in increasing the efficiency of the Standing Committees and in dealing with those problems more directly related to the individual physician both in his own behalf and in what he can personally do for the State.

We feel that, more than ever before, every physician in the State should consider it his duty to keep informed of all matters pertaining to public health and hold himself ready for any personal service he may be asked to perform in this relation. He must be willing to spend time and energy necessary to inform influential people in his community of the menace to the public of efforts at vicious legislation which, if successful would be disastrous. When asked to write to his Assemblyman Senator or the Governor, he must waste no time in doing it. Indeed, if asked to attend the hearings in Albany on questions of vital importance to public health and medical advancement he must unselfishly go. If the whole body politic of the State Society would really do these things, "not grudgingly or of necessity," but determined on putting best effort into them, the effect would be to sustain the dignity

and influence of the Society in a degree commensurate with the times in which we live and an immeasurable benefit to the public.

With the Executive Committee sitting frequently and the centralization of activities in the New York Office, where all the records and machinery of the Society are located, it is evident that business will be transacted with a minimum of friction and in greatly increased amount. In this connection it must not be forgotten, that with increasing activities, there is inevitably an increase in the cost of operation. We as a Society cannot dodge this fact, and, as individuals, we must meet it not only in a spirit of personal service and present sacrifice, but in the belief that it is an investment, certain to yield good interest in the long run. We surely possess the breadth of vision to perceive that, unless the State Society maintains the glory of its historic past and the sinews of war be provided to tread the difficult path of the immediate present, it will sacrifice its power to help its individual members and lose its influence for good in combating the ever-increasing menaces to the public health of our Empire State.

"At a meeting of the Medical Society of the State of New York, held at the usual place, September 4, 1795,

"The President read a letter from the Governor of the State to him, as President of this Society, on the subject of the present alarm in consequence of the disease in the upper part of the City for the intercourse having been stopped between this city and Philadelphia by the Governor of Pennsylvania's Proclamation."

Let us so live, that our present Governor will gladly turn to us for advice on subjects involving the Public Health and Medical Education.

Your Committee would urge that, for the reasons already stated above, the resolution be passed placing the direction and control of the Standing Committees under the Council of the Society, otherwise they must remain as little more than dead letters.

We recommend the disapproval of the Curtis-Rayney bill, as reported by the Ways and Means Committee of the House at the last session of Congress, for the following reasons:

1 The limitation of importation of narcotics to the raw materials, such as "crude opium and coca leaves, or other crude narcotics as may be found necessary by the Secretary of State, the Secretary of the Treasury and the Secretary of Commerce to provide for medical and other uses" would endanger a shortage of these drugs at a time when it might be calamitous. Not even the medical profession can always foretell the advent of epidemics or other circumstances which would imperatively call for their use in larger quantities than could be rightfully required under normal conditions.

2 On the other hand, the limitation of importation of the raw materials would, *ipso facto*, create the danger of monopoly by manufacturers, who could obviously control both price and quality of the refined drugs.

The whole country is naturally stirred over the abuse of narcotics, and the results which must follow, if it be not checked. But we physicians must not go on record for approving legislation, which will handicap us, to the great detriment of the sick and suffering, in the legitimate use of these drugs.

Respectfully submitted,

JOSHUA M. VAN COTT,

April 15, 1921

Chairman

#### REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

##### *To the House of Delegates*

The scientific program as printed speaks for the work of the Committee. Two meetings of the Committee were held, at which all of the Section Chairmen or the Secretary were present and the general outline of the program discussed. We cannot allow this report to be published without reference to the death of Dr. Godfrey R. Pisek, the Chairman of the Section on Pediatrics, which occurred suddenly on January 19, 1921. His loss was felt by every member of the Committee as a personal loss. His work and his suggestions as a member of the Committee were constructive and of very great value. The President appointed Dr. Walter D. Ludlum to fill the vacancy.

Respectfully submitted,

SAMUEL LLOYD,

April 15, 1921

Chairman

#### REPORT OF THE COMMITTEE ON MEDICAL RESEARCH

##### *To the House of Delegates*

The Committee on Medical Research desires to report that during the current session of the Legislature bills were introduced intended to restrict research, by excluding dogs for purposes of investigation or experiment. Senate Bill Int. No. 258 and Assembly Bill No. 371 are the measures in question.

Public-spirited individuals, medical and public health organizations and the members of your committee have actively protested to the members of both branches of the Legislature in person and by letter, and proper objections were presented at the joint hearing on March 22.

The bills were not reported out of committee.

Respectfully submitted,

FREDERIC E. SONDERN,

April 15, 1921

Chairman

## COMMITTEE TO CONSIDER THE QUESTION OF THE APPOINTMENT OF AN EXECUTIVE SECRETARY

The subject of the appointment of an executive secretary as requested by the House of Delegates had the serious consideration of your Council.

A Committee immediately appointed to consider the question in detail presented the following report:

The Committee on the Question of the Executive Secretary is pleased to report that the last House of Delegates adopted the recommendation of President Madill advising the employment of an Executive Secretary. Your Committee after considering the whole question including the financial obligations involved recommended—

(a) That an Executive Secretary be employed on contract to be drawn by our Counsel and signed by the President and the Executive Secretary for the period of six months at a salary not over \$3,000 and an expense account of not over \$2,000 for the period above named.

(b) The duties of the Executive Secretary shall be defined by a Committee of Five, composed of the President, Secretary and three other members of the Council to be named by the President. But the detail of the work of the Executive Secretary shall be subject to the control, supervision and approval of the Secretary of the Society elected by the House of Delegates.

(c) The Sub Committee of the Council, in defining the duties of the Executive Secretary, shall not interfere with the present plan of the general office work.

Respectfully submitted,

J. RICHARD KEVIN,  
E. ELIOT HARRIS  
EDWARD LIVINGSTON HUNT

The Council on the whole in favor of the appointment recommended, and anxious to execute the instructions of the House of Delegates, was, however, impressed by several serious obstacles which became evident during the consideration of the subject.

First. The apparent lack of appreciation of the broader needs of the State Society by the candidates who appeared before the Council, and the scarcity of applicants for the position.

Second. The inability to define concretely the duties of the Executive Secretary, without further study and possibly instructions from the House of Delegates. For example, just what was meant by "better organization," "greater protection" and "greater welfare activity." In this discussion it became evident that faults in the functioning of the Council and in the Legal Department were in a measure responsible for the defects this proposed new appointment was intended to remedy. Your President has reme-

died these, as will be apparent in the reports of the Council and the legal Counsel.

Third. The financial situation of the Society. On December 7th the date of the last Council meeting, 3,000 members had not paid their 1920 special assessment of \$2.00 each and on the same day the bank balance for current expenses was only \$4,100. It is evident that your officers could not assume the responsibility of an expenditure of even \$5,000 for six months. The thought that money can be found for a good cause does not put it into the bank to draw against on the first of the month when salary is due.

These reasons considered in detail resulted in a vote which postponed the desired appointment.

In order that the House of Delegates might not misunderstand the motives for this action of the Council a Special Committee was appointed to explain in greater detail as above which would not be apparent in the minutes of the meeting.

This Special Committee would emphasize that in their opinion the really broad scope of the work in one of the most important State Societies of the Union demands as a guarantee for success, a man of unusual vision and keen efficiency who would not only command higher compensation than originally contemplated but who cannot be secured on a six months' tryout basis. For this purpose it is absolutely necessary for the Society to have in hand and not only in promises the funds to pay him and his expenses.

FREDERIC C. SONDERN,  
EDWARD LIVINGSTON HUNT,  
HENRY LYLE WINTFR

April 15, 1921

## REPORT OF THE SPECIAL COMMITTEE ON BY LAW AMENDMENT

### To the House of Delegates

The minutes of the 1920 meeting of the House of Delegates states on page 135 of the April, 1920, JOURNAL that this committee was appointed to consider the proposed amendments to the Constitution, Article IV. On page 111 of the JOURNAL for March, 1921, is the statement that an amendment to Article IV had been "presented at the last annual meeting of the House of Delegates and published in accordance with the State Society By-Laws Chapter XII, Section 1." This amendment will be acted upon at the 1921 annual meeting of the House of Delegates. Therefore any recommendation your committee may submit practically will be nullified.

However your committee made an investigation of the methods of representation operating in other State Medical Societies. Quite 80 per cent of the State organizations sending delegates to the American Medical Association replied to the questionnaire sent them. A

tabulation of the replies compels the following generalization

1 That in every other State Society the representatives to its House of Delegates are apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society is entitled to elect at least one delegate

2 That such method of representation has been found to work satisfactorily, and

3 That such unit representation is fair and just to the membership

Your committee has considered four propositions relative to methods of representation. They are as follows

A To make no change whatever in the present method of determining representation in the House of Delegates

B To secure to each constituent society one delegate and as many more less one as the membership of the constituent society contains a unit number. The unit number to be of such size as will keep the balance of representation fairly equitable for all parts of the State

C To secure to each constituent society one representative and as many more less one as the number of regularly licensed practitioners of medicine residing in the geographical territory of the constituent society contains a unit number. The unit number to be of such size as will keep the balance of representation fairly equitable in all parts of the State

D To determine the personnel of the House of Delegates of the State Society by election from the present district branches in place of the county societies. The present size of the State House of Delegates to be greatly reduced. A proper remuneration to be awarded each State delegate and a penalized attendance required. Thereby the responsibility of the delegates will be increased while the work will be more quickly, easily and efficiently accomplished. Each district branch to have a subsidiary House of Delegates, which shall elect the delegate or delegates to the State House of Delegates. The personnel of this subsidiary House of Delegates to be determined by each constituent County Society of the district by any one of the methods A, B or C above mentioned, delegates to such subsidiary House of Delegates to serve without pay, and to have a responsibility not greater than that now assumed by the delegates to the present State House of Delegates of the State Society

After careful consideration your committee expressed itself in regard to these schemes—5 in favor of Scheme A, 1 in favor of Scheme B,

1 in favor of Scheme D somewhat modified, therefore, Scheme A is the majority choice of your committee

As the House of Delegates will vote upon this choice when voting for or against the Constitutional amendment now before it, your committee submits the majority recommendation that no change be made in the present method of determining the representation of the constituent county societies in the House of Delegates of the Medical Society of the State of New York

Your committee also submits herewith a minority recommendation which is the amendment to be acted upon by the House of Delegates

Respectfully submitted,

GROVER W. WENDE, *Chairman*

OWEN E. JONES

JAMES F. McCAY

THOMAS H. HALSTED

JAMES F. ROONEY

WILLIAM FRANCIS CAMPBELL

April 15, 1921

#### MINORITY REPORT

##### *To the House of Delegates*

The undersigned member of the Special Committee on By-Laws Amendment, not concurring in the opinion expressed in the report of said committee and dissenting from the recommendation thereof, and, furthermore, having been, by reason of the failure of the committee to hold meetings, unable to confer with and present arguments to the other members of the committee, begs to submit a minority report

The conclusion that any recommendation the committee might submit would be practically nullified is based upon false premises as the purpose for which the committee was appointed was to consider the subject matter of the amendment mentioned, the implied duty of such committee being to recommend adoption, rejection or modification after thorough consideration and study

Based upon a most excellent and exhaustive investigation by the chairman of the committee, the report states

"That in every other State Society the representatives to its House of Delegates are apportioned among the constituent societies in proportion to their actual active membership, except that each constituent society is entitled to elect at least one delegate,

That such method of representation has been found to work satisfactorily, and

That such unit representation is fair and just to the membership"

Despite these frank statements and the admission of justice, the report recommends the continuation of the present archaic method whereby the membership of the House of Delegates is apportioned by the State Legislature. Under this method neither the House of Delegates, the State Society nor the constituent County Society has a voice in the actual membership of the House, and this membership may be changed at any time by political maneuvering.

In a body which professes to be democratic and representative as does the Medical Society of the State of New York the only just and equitable method of electing delegates possible is that which is based upon the membership. These United States were founded on the valid and indisputable contention that representation and taxation should be in proper proportion, any deviation from this is virtually disenfranchisement and verges on autocracy. Above all, the power of regulating the membership of the House of Delegates should be in the hands of the State Society and not of the State Legislature.

The adoption of the amendment is earnestly recommended.

Respectfully submitted,

D S DOUGHERTY

April 15, 1921

#### REPORT OF THE COMMITTEE ON LEGISLATION

##### *To the House of Delegates*

Your Chairman was projected into office at the end of the legislative session of 1920, at which time he found all legislative affairs concerning medical legislation in a chaotic condition. The amended Medical Practice Act, which had been agreed upon by the Education Department and the Society, had been introduced too late for support had been given it, and it had been defeated on the floor of the Assembly. Assemblyman Kenyon, its introducer, told your Chairman after its defeat, that because of its lack of support by the Committee on Legislation, and the profession that he would never again introduce any legislation of this kind unless he was assured beyond doubt that he would not have to fight the matter through against the proponents of quackery again, alone. The Chiropractic Bill had passed the Assembly and on the afternoon set for a hearing upon it before the Senate Committee on Public Health your Chairman received the following telegram: "You have been elected Chairman of the Committee on Legislation this morning. Please assume your functions at the Chiropractic hearing this afternoon." J R Kevin, President. This hearing was entirely *pro forma*. No work had been done with any individual senators no evidence of the evil of the bill had

been placed before them and as a result the bill was passed after a short roll call in the Senate and placed in the hands of the Governor. A hearing was had before the Governor, and with the aid of the State Department of Health and the Education Department, the argument was so forcibly presented to him that he vetoed a bill which should properly never have been before him, and would not have if the proper kind of work had been done in the Legislature. The Cotillo Bill, which had been in one form or another presented to the Legislature for seven or eight years, was withdrawn by its introducer after a hearing at which the Senator scathingly arrayed the persons who asked him to introduce it and practically accused them of deceiving him as to the motives behind the bill. This bill has reappeared this year and will be noted below.

The chief measures of importance to the medical profession introduced at the session of 1921 are as follows:

1 The Compulsory Health Insurance Bill, which this year scored the whole gamut as had been predicted by your Chairman at the first hearing upon this measure in 1916, including unemployment insurance, invalidity insurance and old age pensions. At last the bill was introduced by a member of the party to which the measure belongs, the member being Mr. Orr, the Socialist. This bill has slept very quietly in Committee.

2 The various measures concerning the Narcotic Drug question. Of these there have been four. The first Lord bill abolishing the Department of Narcotic Drug Control, the second Lord bill re-enacting the main provisions of the old Whitney law without provision for any bureau to make rules and regulations, the second Smith bill practically the same as the Cotillo bill of last year noted above which prohibits the prescribing any narcotic drug to patients suffering from addiction disease, permitting only personal administration of the drug by the physician, thus practically compelling the institutionalization of all persons afflicted with addiction disease or driving them to the underworld for their supply of drug. It requires that practically all addicts shall be committed to state, county or municipal hospitals or to private sanatoria or hospitals which have been licensed *ad hoc* by the State Department of Health. It furthermore requires the keeping of records by physicians and official prescription blanks for every case in which narcotic drug is dispensed for no matter what disease and in no matter what amount and for no matter what method of application or administration except it be for external application. It resembles for the purpose of enforcement of the act the statute of privileged communications. It provides no penalty for the possession of narcotic drugs illegally obtained for illicit use by criminal peddlers of the underworld who are not themselves addicts. It permits the administra-



tion of narcotic drug from a stock solution without requiring any record so far as concerns the amount of the individual dosage to each person to whom administered. This would permit hospitals and institutions, sanatoria, public and private, to administer narcotics in any amount they chose without it being in any way possible to check the amount used on each patient, while physicians would be obliged to keep records for every dose administered or prescribed or dispensed either directly or indirectly. It is known and conceded that there are not existent the necessary number (20,000 to 50,000) hospital beds in the State of New York to house the addicts who under this law must, to legitimately be treated, be committed to an institution, public or private. The majority of state, municipal and county hospitals practically refuse to accept for treatment cases of drug addiction, and even if they did they could not accommodate one-tenth of the number of addicts in addition to their normal population. It may be readily seen, therefore, that but one or a combination of two or more of the following means would have to be taken: (1) The addict could be committed to private sanatoria for the treatment of drug addiction and the cost of the maintenance of addicts so committed would fall on the municipality or county from which committed, (2) The addict of either the criminal or, more horribly, of the non-criminal class would be compelled to secure their drug from the underworld peddler, (3) The state, county or municipality would be obliged to adapt old or erect new hospitals to take care of a population of from twenty to fifty thousand patients. And this would have to happen overnight in the same manner as Secretary Bryan's army would leap to arms! Where the scheme is not horrible and inhumane it is ridiculous, and at the same time sinister. The bill is not a local one, a studied attempt is being made to effect it into law in many states, and an earnest effort is being prosecuted to have the regulations promulgated by the Federal Bureau having charge of the Federal Harrison Act to give that act the same force as this bill would have if it became law. *Verbum sapienti sufficit!* The first Smith bill classes drug addiction among the infectious and communicable diseases presumably to give the same power to boards of health and health officers to commit and hold in isolation drug addicts as they now exercise under the same section in cases of smallpox, diphtheria and other infections. This endeavor to so characterize drug addiction was well termed by the Commissioner of Health of the State of New York at the hearing upon these bills before the Governor as "sheer nonsense."

Both of the Smith bills were opposed at the hearing before the Joint Committee on Public Health of the Legislature as well as at the hearing before the Governor after the bills had been

passed by the Legislature, by your Chairman. At the hearing in the Legislature the bills were favored by the Chairman of the Committee on Legislation of the New York County Society, the President and the First Vice-President of the State Society, and others. At this hearing the Chairman of the New York County Society challenged in open hearing the right of your Chairman to speak for the State Society upon this question without remonstrance from the officers of the State Society there present. This was so obvious that Senator Fearon, who had introduced this bill in the Senate, took the floor and requested the Joint Committee on Public Health, who conducted the hearing, to permit your Chairman to file with the Committee the proof of his right to speak for the State Society. As an evidence of the disunion and disorganization existing from the Compulsory Health Insurance days this neatly capped the climax. And moreover the source is the same.

(3) The Health Center Bill, somewhat modified from that of last year, but essentially the same, died in committee after a hearing.

(4) The Chiropractic Bill, introduced in the Assembly by Mr. Yale, of Putnam, was referred to the Committee on Judiciary, of which Mr. Louis Martin, of Oneida, was Chairman. This bill was reported favorably after a snap hearing on twenty minutes' notice granted by Mr. Martin only after a continuous insistence for twenty-four hours. The hearing was not publicly noticed. Through a clever maneuver the very capable legislative agent for the chiropractors, through a second person, handed the bill to Senator Wiswall, of Albany, who without reading the measure, introduced it in the Senate, and who in two days so amended the bill in order to require proper standards of preliminary and professional education on the part of those who sought to be licensed under the waiver clause of the bill, that the chiropractors at the Senate hearing appeared in opposition to their own bill. At this hearing Senator Wiswall accused them of not wishing to meet educational standards and thus not showing good faith. The bill was never reported by the Senate Committee and was re-committed in the Assembly on the second last day of the session, and thus died.

(5) The amended Medical Practice Act, without the provisions for re-registration of physician providing for prosecution of offenders against the law by the Attorney General instead of by district attorneys was swapped by its introducer for the Chiropractic Bill through what seems to your Chairman an error of judgment although done with the best intentions. The fact is that a great number of the members of the Assembly wished neither to offend the medical profession or the chiropractors by going on record upon a vote on either of these measures, perhaps for

this reason the agreement was made to recommit both bills and thus save "the boys from embarrassment"

(6) The bill changing the constitution and method of appointment of members of the Public Health Council which would put this most important advisory body into the field of local politics was defeated in the Assembly

(7) The bill for the purpose of authorizing osteopaths to report births and deaths and cases of communicable disease and giving them all the rights, privileges and immunities of regular physicians was killed in the Committee on Public Health of the Assembly

It seems important to the Committee that the medical profession should begin to consider seriously the menace involved to the public health, the public well and the profession, and evidenced by the continuous and persistent efforts of lay groups highly organized minorities in association with small but influential cliques of physicians. The end is to secure eventually complete control of the medical profession and to ultimately socialize it. The same groups that were interested in forwarding the scheme for Compulsory Health Insurance are now looking toward State Medicine the entering wedge of which is the Health Center plan, which was to be combined finally with Compulsory Health Insurance.

Regulations as to the use of narcotic drugs and alcohol are merely the beginning of an attempt to completely control therapeutic methods. The various committees that have been appointed by national and state bodies to "investigate" these subjects apparently have had as their foremost requirement for membership thereon the proof of lack of experience with the subject to be considered by them and their reports have always been entirely standardized and apparently written *ad hoc* by an interested group comprising not more than ten men in the medical profession and a couple of lawyers. Their investigations have not been unbiased, their findings have not been judicial, and their reports have largely been *ex parte* formalizations. That a senator of the State of New York should be obliged to state at a public hearing that a bill which he had been asked to introduce, and which had been approved by this State Society, was such in its nature that he felt aggrieved and imposed upon and immediately withdrew this bill, is a fact to excite surprise, grief and indignation.

Various cults are cropping up each year which are highly financed and have an extremely active and well paid lobby and a legislative influence that is entirely disproportionate to the number of their adherents. There are probably less than one thousand chiropractors in the State of New York, and there are fifteen thousand licensed physicians, but I dare say the legislative influence of the chiropractors, highly organized as they

are, is many times as great as that of the fifteen thousand members of the poorly organized medical profession, in fact, one might say, disorganized medical profession.

Through the immense propaganda of the various cults, the lay public in the last twenty years has been subtly influenced against the profession of medicine, not against the individual physician but against the so called "doctors' trust". Physicians know that these allegations are untrue, but they do not even take the trouble to deny them, much less do they wish to educate the public to a proper appreciation of what medical science and art is and does. Without this education of the public, it will be impossible to secure their good will and aid, and without either of these any attempt on the part of the profession to benefit the public by means of legislation will fall to the ground.

The representation of the medical profession in the legislature is to day woefully inadequate, even though we have two members in the Assembly. Efforts should be made to increase this representation in those districts of the State where it is possible. Men should be asked to stand for election, and every effort made to secure their election. But most important of all is it that the medical profession clear itself of all the groups and cliques who are striving not mainly for the benefit of the public and the profession, but for other and ulterior motives, or are acting upon the unstated judgment that they must be right and the whole body of the profession wrong, whose chief idea is the formation of compacts with other groups for the purpose of controlling the election to office in the State Society. These evils must be exercised, the Society must be united it must organize, it must educate the public, or if it do not, so surely as the tide covers the sand bar the profession of medicine will become the tool or instrument of forces existing today in the commonwealth whose sole desire is power attained through absolute control of the medical profession.

The medical profession within the State Society is not in reality organized, on the surface it is but under the surface the gaps are so great that a torrent could easily pour through them. There is very little co operation between the county societies and the committees of the parent body. For instance the Chairman of your Committee sent early this year to the Secretary of each County Society individual cards for each senator and assemblyman representing that county in the Assembly or Senatorial District asking that these men be interviewed at home and their position on the various measures of interest to the public health and the profession be ascertained and the cards properly completed returned to your Chairman. From only twenty-four of the counties were the cards received in time to be of use from only twenty nine of the

counties were the cards received by the end of the session, and from thirty-three of the counties no reply has yet been received. Still what criticism would have been hurled at your Committee had any of these measures which they did not desire to pass been carried through and become law! And the larger part of the reason would have been and is due to their own neglect and the pursuance of the policy of letting George do it. Instance after instance could be given, but one is the exemplar of all. Unless a greater interest is taken by every individual member, and especially by the officers whom the members elect, in these matters which so directly interest and affect them they will very shortly be overtaken by a calamity not apparently undeserved.

At the time of the making of the present medical law in this State the medical profession and the other associated professions following them supremely agreed to provide funds for the administration of the law. The Legislature graciously agreed to this principle because it would cost the State nothing for in this manner, protecting to a degree the public health, and provided in this law that all moneys received should be paid into the State Treasury and that the Legislature should annually appropriate an amount sufficient to administer the law. Through these beneficent provisions the professions have paid into the State Treasury each year for the last ten, excluding this year, from three to ten thousand dollars more than the Legislature has appropriated back to them for the administration of the law, and this year will pay in a hundred thousand dollars more than is reappropriated! And still the Legislature would not report a bill increasing the salary of the Secretary of the State Board of Medical Examiners, a salary fixed fourteen years ago, in the sum of five hundred dollars, in order to bring the salary for this office to correspond with that of the Secretary of the Dental Board! Is it not time for the professions to insist that they shall not be taxed illegally and indirectly to pay money into the Treasury of the State that should by right go to the bureaus having in charge the administration of the law as was the plain intent of the statute?

Some attempt must be made to increase the efficiency of the prosecution of offenses against the Public Health Law. Outside of murder, your Chairman believes, no crime against the common weal of the State goes so often unwhipped of justice as violation of this law. Why pay money to administer a law for the protection of the public health if quackery is not alone unpunished and permitted to maim and ignorantly kill, but in addition to fatten, become enriched wax fat and kick? The remedy lies in an amended and proper law, properly and rigidly enforced, and in public education in health matters, a task which is the duty of the profession, and besides, one which is very sadly neglected.

The amount of money spent by the Society in prosecuting the work of its Committee on Legislation is woefully inadequate, it has never, so far as your Chairman can recall, exceeded seven cents per capita of membership. The chiropractors alone spend from twenty to fifty thousand a year to maintain their legislative lobby, there are less than a thousand of them, and the State Society has nearly nine thousand. A contribution from each chiropractor of twenty to fifty dollars a year, and from each member of the Society seven cents! From the sublime to the ridiculous!

In closing this report, and before submitting the recommendations of your Committee, your Chairman wishes to extend his deepest and most heartfelt thanks to those members and officers of the State and County Societies who have in many ways helped him in his endeavor to serve the public and the profession. To the Assistant Commissioner of Education, Dr A S Downing, he pays the respect and thanks for his devoted labors for the public and profession for so many years. His association with this public servant for this now many years has but served to deepen his admiration of his character, his envy of his attainments, his respect for his devotion to his duty and his work, and his thanks for his friendship. To the State Commissioner of Health, Dr Hermann Biggs, and to the Assistant Commissioner of Health, Dr Matthias Nicoll, your Chairman wishes to express his personal debt of thanks for many acts in aid. It has been your Chairman's fortune this year to have a most loyal associate and co-worker, a most capable worker, a most intelligent, a most honest and indefatigable friend of the profession to whom he pays this meed of thanks, Dr William D Cutter, Secretary of the State Board of Medical Examiners. Finally, to the members of his Committee, and most especially to Dr James N Vander Veer he wishes to extend his thanks for their invaluable aid and active support.

Your Chairman desires to express his appreciation of the many kindnesses shown him by members of the Senate and Assembly, who have evidenced a profound regard for the public health and the welfare of the profession. It is not invidious to name here some of those to whom he is deeply indebted. Senator Gibbs of Erie, Senator Lusk of Cortland, Senator Wiswall of Albany, and in the Assembly Mr Jenks of Broome, who for many years has been an ornament to the chamber and whose judicial discrimination has served us well, Dr Lattin of Orleans, who as Chairman of the Public Health Committee has been a force for good, Mr Bloch of New York, who this long time has placed himself aright on questions concerning the profession, and Miss M L Smith, who, although perhaps ill-advised on one measure, has been as

a member of the Committee on Public Health of the Assembly an able effective and clear seeing friend of the profession. Among a multitude it is difficult to pick a few for distinction, and your Chairman wishes again to reiterate to all those whom he has not named his sincere expression of deep appreciation.

JAMES F. ROONEY, *Chairman*

Your Committee recommends

(1) That a Legislative Bureau be established permanently at Albany for the purposes set forth in the report of this Committee for the year 1919.

(2) That action be taken by the House of Delegates upon the perversion of the statute by the Legislature in not reappropriating moneys received from the professions to the department of education for the purpose of administering the law.

(3) That a committee be appointed by the House of Delegates to confer with similar committees to be appointed by other professional educational and lay bodies for the purpose of amending the medical practice act in order to make its provisions effective and to modify its requirements as may be deemed necessary for the practice of medicine both general and special.

(4) That a committee be appointed by the House of Delegates to devise a plan for conducting public health education by County Societies for the purpose of creating a public demand for proper health law and its enforcement.

(5) That a Committee be appointed by the House of Delegates for the purpose of prosecuting a real State-wide investigation—not the closed chamber five hour stereotyped dictated sort—on the subject of narcotic addiction disease and that their report embody suggested changes in the present law both Federal and State that they deem necessary for (a) proper medical care, and (b) police regulation. Further more that this committee meet with such other bodies magisterial charitable health, and educational in the hope that this most important question may be clarified and if possible, an unanimity of opinion arrived at which will have imperative effect upon legislatures both national and state.

(6) That the House of Delegates determine whether at legislative hearing the presentation of the argument for the Society shall be made by and at the direction of the Chairman of your Committee on Legislation or whether any County Society may, irrespective of the opinion of your Chairman present its view in opposition thereto.

(7) That the use of personal influence to in any way defeat the legislative program of this Society subject any member so offending to censure by the Society.

COMMITTEE ON LEGISLATION

JAMES F. ROONEY, *Chairman*

JAMES N. VANDER VEER,

MAY 2 1921 HENRY S. STARK

## REPORT OF THE COUNSEL

*To the House of Delegates of the Medical Society of the State of New York*

GENTLEMEN:

The following report is submitted covering the activities of Counsel of this Society from the period between September 1, 1920 and April 1, 1921.

Since September 1, 1920, there have been received by counsel 57 separate cases instituted before September 1st, and since that time 24 new actions have been brought, making a total of 81 cases that have required the consideration of Counsel. Eighteen cases have been disposed of in favor of the defendants, and one case resulted in a jury verdict against the doctor. In the latter case in appeal is now pending from such verdict. There are now pending awaiting disposition 62 cases.

The cases received since September 1, 1920, are classed as follows:

Nature of case	Number of cases	Percentage of total cases
Fractures Arm leg or hand	16	19½%
Obstetrics	15	18½%
Amputations Toe finger or ear	5	6¼%
Death by anæsthetic Diphtheria meningitis morphine etc	11	13½%
Burns X Ray galvanic and by anæsthetic	5	6¼%
Abdominal operations Gall bladder appendicitis etc	5	6¼%
Veeltes breaking Lumbar punctures pleurisy aspirations throat (tonsil) abdomen etc	8	9¾%
Infections Finger scalp leg etc	5	6¼%
Eye Loss of or injury to	2	2½%
Lunacy commitments	4	5%
Miscellaneous	5	6¼%

In 19 cases received by Counsel's predecessor Counsel found it necessary for the proper preparation of the case to make demands or motions in court for bills of particulars as to the items and details of the plaintiff's claim, and it has been the practice in all the cases that have been since instituted to make such demand, unless the complaint served is sufficiently explicit in itself to give the proper information requisite for adequate preparation. Other preliminary motions before trial examinations of parties, physical examinations of plaintiffs have likewise been made in a number of instances.

It will be noted from the percentages above quoted that cases of fracture are particularly hazardous to the physician, because such injuries have given rise to a greater number of claims against the physician than in any other class of injury.

The percentage in obstetrical cases follows as a second to fractures, by reason largely of the fact that in such cases there is a double hazard to the physician for damages to the patient as well as by suit on the part of the husband to recover for the loss of the wife's services.

The cases based upon injuries resulting from the use of apparatus, such as X-ray, galvanic current, machines for the administration of anæsthesia should be considered with the needle cases, as both classes of cases arise from injuries due to the use of an apparatus or mechanical device inherent in which are possible sources of injury although employed with skill and care.

Considered from this point of view, we see that the total percentage of claims arising from the use of such devices is about 16 per cent. These figures indicate a high degree of hazard in cases involving the use of such devices.

The following is a list of cases received by your Counsel from his predecessor:

1 This action was brought in the County Court. The plaintiff was suffering from an illness and claims that the physician in the treatment of said illness injected into his spine a certain fluid or substance and in so injecting said fluid or substance punctured the spine of the plaintiff with a surgical needle, and that said surgical needle was left in whole or in part in the body of the patient and that the physician permitted said needle to remain in the body of the patient, thereby causing him permanent injuries to his body and mind. The plaintiff made an application to discontinue without the payment of costs, for the purpose of instituting an action in the Supreme Court to recover a great amount of damage which application was granted.

2 In this action the plaintiff claimed that she had employed the defendant to care for her prior to and at the time of the birth of her child, that the physician was unskillful, negligent and careless in his attempting to care for and treat the patient in and about attending upon the birth of said child and that by reason of his carelessness, negligence and unskillfulness, she was caused to suffer mental and bodily pain and anguish and that she has sustained injuries which were permanent in their nature.

3 This action was brought by the husband of the plaintiff in the last above case claiming to recover damages for the loss of the services of his wife based upon the same alleged acts of negligent treatment by the physician.

4 This action was brought by a guardian *ad litem* of an infant girl and it is claimed that the physician improperly diagnosed her condition as one of serious cramps whereas she was suffering from an acute gangrenous appendicitis and in such serious condition that an operation was performed within an hour after her admission to the hospital. That the physician prescribed medicine for cramps instead of diagnosing her case as appendicitis and that by reason of his failure to properly diagnose, she was prevented from attending to her usual duties and suffered permanent injuries.

5 This was an action brought by the mother of the infant in the case last above, seeking to recover damages for the loss of the services of her infant daughter.

6 Is an action in the Municipal Court wherein the plaintiff claims that the defendant made a special pair of spectacles for the plaintiff, which spectacles when put to the test of actual use gave pain to the plaintiff by reason of their being unsuited for near and distant observation and for use in reading and writing. The plaintiff seeks to recover from the defendant the cost of the spectacles and the amount paid to the defendant for examination and treatment of his eyes.

7 In this action the plaintiff alleges that she had employed the defendant to attend to her at the time of her child-birth and thereafter during her confinement that the defendant attended to the patient in a hospital at the time of her giving birth and rendered services as a physician at that time, that by reason

of the negligent and careless and unprofessional treatment of the defendant, the plaintiff's nipples cracked causing the plaintiff to suffer great pain, and that the defendant negligently ordered alcohol treatment for her nipples, that by reason of the negligent treatment of the defendant, the right breast of the plaintiff was caused to creak which was treated in an unskillful manner, that it became necessary for the plaintiff to consult a specialist as to the condition of her breast, that the defendant had ordered ice-bag treatment which was improper and negligent, careless and unprofessional and that he should have directed hot applications and massage and that by reason of the defendant's alleged negligence, the breast became abscessed and required treatment for a long period of time and the plaintiff was compelled to remain in the hospital and in bed for a period of time and that she suffered permanent injury from swollen legs and fallen arches as a result of the wasting of the muscle tissues of the legs, that the plaintiff was also rendered unable to nurse her child and the child was compelled to be brought up on a bottle instead of mother's milk.

8 In this action only a summons was served and no complaint setting forth the nature of the cause of action and the extent of the injuries complained of was received.

9 This was an action brought by a woman who claimed that she had employed the defendant to attend to and take care of her during her pregnancy and at her giving birth to a child, that she became ill and had symptoms and signs and felt that she was about to give birth and called the defendant who stated after examination, that she would give birth at a certain hour, she had further signs of giving birth and repeatedly gave notice to the defendant to appear but he failed to do so until a later hour in the day, that upon the day of her giving birth he had sent an individual, not a duly licensed physician, to attend to and take care of her, and that said individual attended to her in an improper and negligent manner and did not use proper care or skill, in that said individual placed his hand into the patient's womb and treated her in such a manner that he thereby turned the child and caused the cord to be torn and tightened around the child's neck and also not to come forward with its head as it originally did, that by reason of said acts of the individual the child of the plaintiff was born dead and she suffered mental and bodily pain and anguish.

10 This action was brought by an administratrix to recover for the death of her deceased intestate, a boy about thirteen years of age, it is claimed that said intestate was suffering from an illness and the defendant was called in to treat him, that in or about his attendance, prescriptions and instructions the defendant, was unskillful, negligent and unprofessional, and that by reason of his improper treatment the said intestate continued ill and became in a dangerous and fatal condition and died from his illness, and that said death was caused and resulted from the unskillful and negligent treatment by the defendant.

11 In this case the plaintiff, a woman, alleged that she had employed the defendant to set the bones of her left wrist which were broken and that the defendant consented to do so and to attend and care for her, that he was so negligent and unskillful in attempting to set said bones of her wrist as to cause a permanent deformity in her wrist and make necessary an operation for the resetting of the bones of her wrist, that by reason of the defendant's negligence she became permanently disabled and kept from attending to her business.

12 In this case the mother of the boy claimed that she had brought her son to the physician for treatment for his eye and that the defendant stated there was nothing the matter with the eye, the trouble was with his stomach and prescribed certain medicines and gave certain instructions which were carried out and

that by failure of his improper treatment the sight of the eye was lost

13 The plaintiff in this case alleges that the defendant improperly amputated one of his toes and that the defendant was negligent, careless and unskillful in his care and treatment of the plaintiff's toe and allowed and permitted the plaintiff to leave the hospital too soon after the amputation and that blood poisoning set in causing the plaintiff to suffer great pain and anguish and necessitating the amputation of his left leg and afterwards his right leg and that his general health was impaired, weakened and ruined and that he was permanently injured disabled and made sick and required to expend large sums of money for medical treatment

14 The plaintiff a woman alleges that she had gone to the defendant and employed him as a physician and that he administered and gave her certain electrical treatment that he attached to her abdomen an electrical machine and carelessly and negligently left the plaintiff alone without anyone in attendance and carelessly allowed the machine to remain attached to the plaintiff in such a manner and for such a long period of time as to cause the plaintiff's body to be severely injured and that she suffered permanent injuries thereby and still suffers great pain internally and externally as a result of said injuries and will be compelled to undergo further treatment to cure herself of said injuries

15 The plaintiff a man alleges that he broke one or more of the bones of his left forearm and went to a hospital to have the broken bones set and treated and cared for and that the defendant undertook to and did set the broken bones and bandage the plaintiff's arm and that the defendant declared to the plaintiff that the arm would be healed and cured that the defendant used improper care and skill in the setting of the broken bones and in his treatment and after care so that the plaintiff's arm was crooked and actually deformed when healed and the cords and muscles of the fingers of his left hand were stiff and he was unable to close his fingers that the deformed condition and stiffening condition of his hand and arm are permanent and has caused him to suffer and will cause him to suffer great pain and anguish and has rendered him unable to perform his usual duties

16 In this action a summons was served upon the physician but no complaint containing a statement of the facts and cause of action has been received

17 In this action a summons was served upon the physician but no complaint containing a statement of the facts and cause of action has been received

18 The plaintiff a woman, alleges that she had employed the defendant to attend her during her confinement and in the delivery of her child that the defendant upon the day of the birth of the child in the early morning improperly left the plaintiff without anyone in attendance upon her and that he improperly prescribed certain tablets for her that it became necessary for the plaintiff to call someone and the only person that she could procure was a midwife who was unable to make delivery of her child and that then it became necessary for the plaintiff to call an ambulance that the ambulance surgeon could not make delivery of her child and it was necessary for him to perform an embryotomy and the disarticulation and decapitation of the child the plaintiff further alleges that the child in the process of birth was suffocated she claims injury to her general health and constitution and that she had suffered and still suffers great pain and anguish and that her nervous condition has been impaired by reason of the defendant's negligence

19 The plaintiff a woman in an altercation with her sister stuck her arm through a pane of glass making a deep cut in her left forearm and severing an artery and nerve The defendant was called and rendered

first aid in the treatment of the injured arm In her complaint she alleges that the physician improperly treated and cared for her injured arm and that he assured, promised and guaranteed to her that the result of his medical and surgical knowledge would relieve her from pain and that her arm wound and laceration would be wholly cured and healed, and that he treated her injured arm in a manner grossly unskillful crude unscientific and negligent and failed to relieve her from pain and to heal or cure her wound and that her left hand is shrunken and deformed and the fingers of her left hand became contracted and bent downward and that the contraction of said fingers is permanent in its nature that she suffered external pain physical distress and mental depression resulting from her injury and the alleged unskillful medical treatment of the defendant

20 This is an action brought by an administratrix to recover for the death of her intestate who was employed in the plant of a chemical company and in the course of his employment his left arm was injured by a sliver of iron or steel into the flesh between the shoulder and the elbow which was so imbedded that it became necessary to have surgical treatment for the removal of the same the intestate was asked if he desired local or complete anæsthetic during the removal of the piece of steel or iron he requested a complete anæsthetic and it is alleged by the plaintiff that the defendant failed and neglected to ascertain the actual condition of the intestate's heart and his capability of resistance to the anæsthetic before the administration of the same and that through the alleged carelessness and neglect of the defendant the said intestate died from the administration of the anæsthetic

21 The plaintiff while under the influence of intoxicants entered the wrong apartment of the house in which he lived and in endeavoring to escape fell to the areaway below and sustained an injury to his shoulder, he went to the defendant for treatment and in this action alleges that the defendant failed to properly diagnose his injury and treated him for a dislocated shoulder when in fact, he had sustained a fracture of the shoulder and that he did not use scientific and modern methods in his diagnosis of the plaintiff's injury and that by reason of the alleged negligence of the defendant the plaintiff was prevented from following his usual occupation for a period of many weeks for which he seeks to recover damages and also damages for the pain and suffering which he alleges he sustained

22 This is an action brought by an administrator to recover damages for the death of his intestate due to the alleged negligence and carelessness of the defendant It is alleged that the defendant was engaged to care for and treat the intestate during her confinement and at the time of her delivery that the period of labor of the plaintiff had been longer than the normal period and the labor pains were weak and tardy and that the defendant in order to hasten the delivery administered a drug that he administered a second dose of the drug the administration of which caused immediate delivery of the child that the defendant thereupon almost immediately after the delivery of said child left the intestate without giving her the proper care and attention and without remaining a sufficient length of time after delivery to ascertain her condition that almost immediately after leaving the patient started bleeding and though repeated efforts were made to get in touch with the defendant and have him return to the patient he did not do so until the following morning, the patient died from a post partum hemorrhage the previous evening about four and a half hours after the delivery

23 In this case the plaintiff a woman had been suffering from a hardening in her left breast and had visited various surgeons who examined and diagnosed

her condition as an abscessed breast and advised an operation, the entire breast was removed in the operation, that she was in the hospital for about two and a half weeks and shortly thereafter was referred by the operating surgeon to the defendant for X-ray treatment, that the wound on her breast did not heal, but was an open discharging ulcer, that the defendant gave her two applications of X-ray along the line of incision, that from time to time after leaving the care of the defendant she went to various physicians and about two years after the X-ray treatment instituted this action to recover damages alleging that the defendant in his treatment cooked and burned the flesh upon her left breast and arm and that the alleged injury caused to her is permanent in its nature, has caused her great pain and suffering and necessitated the expenditure of large sums of money for medical care and treatment and prevented her from following her usual occupation and confined her to bed for long periods of time

24 This action was instituted by the guardian *ad litem* of a young girl who was operated upon for appendicitis and who claims that during the administration of the anæsthetic at the time of the appendicectomy operation that she was severely burned upon the face by the anæsthetic, that the anæsthetic burned and blistered her cheeks, nose and lips and that the burn left a permanent scar on the side of her nose, and that she has suffered great pain and anguish by reason of the alleged negligence of the anæsthetist in his administration of the anæsthetic

25 In this case the plaintiff's leg was broken and injured near the thigh while he was assisting in raising a heavy beam or timber in the course of his employment, he alleges that the defendant was employed to set and reduce the fracture and to prescribe and attend to him until the fractured leg should be restored and cured of its injury, that by reason of the alleged negligence, carelessness and unskillfulness of the defendant in setting and treating the fractured leg, the same was not reduced, and the defendant neglected to properly treat and care for the leg and did not use proper splints and bandages and that by reason of the alleged negligence of the defendant, the plaintiff's leg was not properly set, is weak and deformed and is shorter than his other leg, and that the bones of said injured leg overlap and that his leg will be permanently shortened, weakened, crippled and deformed and he will thereby be prevented from following his usual occupation and has suffered great pain and injury by reason of the alleged negligence of the defendant

26 The plaintiff in this case, a girl, had injured her finger on an electric fan and at her place of employment first aid applications were applied, she then went to the defendant for treatment, who examined her finger and prescribed a lotion for the same, that carbolic gangrene set in the second finger and it became necessary to amputate the same

27 In this case, the plaintiff alleges that she had employed the defendant to care for her during childbirth and that by reason of the carelessness and negligence of the defendant at the time of the delivery, the plaintiff's body became infected and plaintiff was rendered seriously ill and disordered and that the defendant improperly diagnosed the plaintiff's condition and unskillfully failed to treat the plaintiff for such infection and failed and refused to call in another physician in consultation, though requested to do so, that by reason of the infection, the plaintiff became sick and disabled and confined to her bed for a greatly prolonged and increased period and seeks to recover damages therefor

28 This action is brought by the husband of the plaintiff in the case last above who seeks to recover for the alleged loss of services of his wife

29 In this case the plaintiff claims that she fell and suffered an impacted fracture of the neck of the femur

of her left leg and employed the defendant to examine her and to treat her injuries, that pursuant to such employment the defendant examined her and rendered medical advice and treatment, that his examination and treatment of the plaintiff was so negligent and unskillful that he failed to discover the nature and extent of her injuries and failed to ascertain and discover that she had suffered an impacted fracture of the neck of the femur of the left leg and that he carelessly and negligently advised that she had no broken bones and instructed her to use and walk upon her leg, that he failed to make a proper examination of her and failed to give her proper treatment and neglected to set and reduce the fracture, that by reason of his negligence she suffered great pain and is unable to use or to walk upon or with her left leg and that by reason of the alleged negligence of the defendant, she has permanently lost the use of her fractured leg and will not during the remainder of her life be able to use or walk upon said leg

30 This action was brought by an administratrix to recover for the death of her intestate. It is alleged that the defendant was employed as a physician to attend, treat and care for the intestate who was suffering from restlessness, nervousness and neurasthenia and that the defendant as such physician undertook to so treat the intestate, that in his treatment of the intestate he administered excessive quantities of narcotics and morphine and that he failed to discover the true condition of the intestate, and that by reason of the excessive quantities of morphine administered caused the intestate to become violently ill and that he died from the effects of the narcotic and morphine injections

31 In this case the plaintiff claims that the defendant carelessly and negligently treated his injury in causing the same to become permanently injured

32 This case is against two physicians and the plaintiff claims that she employed them to treat and care for her when she was suffering from gall-stones and that they undertook to and did perform an operation to relieve her from her ailment, that they were negligent in performing the said operation and in caring for and treating her after the same in that they carelessly left a needle in the incision made in operating and failed to remove the needle thereafter, although they knew or should have known that the needle or some foreign body was in the incision and in failing to treat her skillfully after the operation to relieve her from pain and suffering from the laceration which the needle caused by piercing her body and tissues and failing to cause a physician of greater skill to advise and consult with them, that by reason of the negligence of the defendants, she suffered great pain and injury, was confined to her home unable to perform her usual duties of housekeeper and compelled to employ other physicians and surgeons to remove the broken needle from her body and was also compelled to undergo another operation for the removal of the gall-bladder due to the formation of cyst which developed because of the alleged unskillful treatment and leaving of the needle in the incision

33 In this action, the husband of the plaintiff in the case last above seeks to recover damages for the alleged loss of services of his wife

34 The plaintiff in this case claims that he was improperly placed in an institution for the insane and kept there for a period of time, when as a matter of fact, he was at all times and at the time of his commitment sane and that the defendant in this case conspired with others in placing the plaintiff in the insane asylum and keeping him there

35 This case is by the plaintiff in the case last above against another of the physicians who made the mental examination of the plaintiff at the time of his commitment to the institution

36 In this case a young girl stenographer while walking on the icy pavements slipped and in falling sustained a fracture to her hand, she alleges that she went to the defendant for treatment and that he failed to diagnose the fractured condition of her wrist and negligently and carelessly treated her and that by reason thereof her wrist and hand became permanently deformed

37 This case is brought by the guardian *ad litem* and in her complaint she alleges that she had taken her infant daughter to the defendant for examination of the condition of her right ear and that he made an examination thereof and gave her advice as to the nature of the trouble existing and that she took the child to a hospital at the defendant's directions ostensibly for the defendant to make a further examination of the child's ear and that at said hospital without the consent of the mother the defendant performed an operation upon the child which operation was performed in a careless and negligent manner causing the child to suffer injuries and damages that the defendant failed to procure the consent of the mother to the operation and failed to use necessary precautions in performing the operation and failed to properly diagnose the child's condition and avoid performing the operation and carelessly and unskillfully removed the child's entire right ear and closed up the sound canal in said ear thereby totally destroying the hearing upon her right side and injuring the nerves in the region where the operation was performed and cut bruised and injured said nerves to the extent that the function of hearing in the right ear was totally destroyed and the child permanently disfigured by the loss of her right ear

38 In this case the plaintiff alleges that he had employed the defendant to set and heal his leg which had broken that the defendant so negligently and carelessly conducted himself in setting the right limb of the plaintiff that the said limb was not properly set or put in place and the leg was so set that the bones between the limb and the hip overlapped and were not in alignment and were in a crooked position and the plaintiff's leg was hereby shortened more than two inches and that he has been lame since that time that by reason of the alleged negligence of the defendant the leg was permanently disabled and plaintiff was kept from attending to his business as a mechanic for a period of six months

39 This action is brought by the administrator to recover damages for the alleged death of his intestate. He alleges that he employed the defendant to care for his intestate a child of thirteen years of age and that the defendant so carelessly and negligently diagnosed the illness and ailment of which the said intestate was suffering that he failed to discover the true condition of said child and that in attempting to care and treat said child that he negligently and carelessly treated said child who was suffering from diphtheria and he failed to properly diagnose and ascertain her true condition and to administer antitoxin and that by reason of his alleged negligence said child died of diphtheria

40 This action is brought by the plaintiff in the case last above in his capacity as administrator to recover for the death of another of his children who died from diphtheria because of the alleged negligent diagnosis care and treatment of said child by the defendant

41 The physician in this case had instituted an action in a Justices Court to recover for his services to the father of an infant in that court the father interposed a defense of alleged malpractice and his infant son instituted an action in the Supreme Court to recover damages for the alleged negligent care and treatment of a fracture of the bones of the left arm which was near the elbow joint which said infant child had sustained in that the defendant failed to reduce

the fracture and to properly set the same or to heal said broken bones and that the arm of the patient was left in a permanently deformed condition and was thereby deprived of the use of said arm

42 In this case a woman by a fall had sustained a fracture bruised and injured nose and left arm and had employed the defendant to treat her injuries she alleges that by reason of the negligent treatment and unskillful conduct of the defendant, said arm and nose were not set nor healed nor cured and permitted to remain out of place until it became impossible to properly set and cure the same and that by reason of the defendant's alleged negligence it became permanently disfigured and her breathing greatly impaired suffered headaches dizziness and her hearing greatly impaired and she seeks to recover damages for said alleged injury

43 In this action the plaintiff a woman had gone to one of the hospitals of the city for an operation of ectopic gestation in her complaint she alleges that the operation was carelessly and negligently performed by the defendant and that by reason of his carelessness in the operation she sustained injuries which were permanent in their nature and was caused great pain and suffering

44 The plaintiff in this case claims that he was suffering from an illness and went to the defendant for treatment who diagnosed his ailment as one of rheumatism and treated him for such using hot applications and other treatment which caused the plaintiff to grow worse and that said treatment caused a poisonous state and condition and caused abscesses to form and that by reason of the alleged wrong diagnosis by the defendant said abscesses came to a head and burst and penetrated plaintiff's system with poison, that the defendant though requested to failed and refused to bring in another physician in consultation and that by reason of the alleged carelessness and negligence of the defendant osteomyelitis was caused in the left foot and leg of the plaintiff and it became necessary to amputate said leg and a further operation for the removal of the fourth vertebra of the spine was had and five operations upon his leg after the treatment and that abscesses also occurred behind the ear of the plaintiff causing deafness and necessitating further operations that by reason of the alleged negligence of the defendant the plaintiff was prevented for a long period of time from attending to his employment and suffered great pain

45 In this action the plaintiff was employed in the factory of a motor car company and while in the course of his employment got a splinter of steel or other foreign body in his left eye and went to the defendant for the removal of the same that the defendant treated him for two or three weeks and discharged the plaintiff as cured, it is alleged that the defendant negligently failed to remove from the plaintiff's eye the splinter or particles of steel which were imbedded in the eyeball and that the examination and treatment of the plaintiff were negligent and careless that the plaintiff was compelled to go to other physicians for the removal of said foreign body from the eye and that he was prevented for a long time from performing his usual work and spent various sums of money in further medical care and treatment in attempting to be cured of the injury to his eye

46 In this case the plaintiff alleges that she had gone to the defendant for the treatment of an illness and pains of which she was suffering, that the defendant improperly and carelessly failed to diagnose analyze and ascertain the nature of her illness or malady and without properly diagnosing without taking a Wassermann test, pronounced the plaintiff's malady to be syphilis and proceeded to treat her for such malady and in the course of his treatment thereafter had injected into her arm certain medicine which



she believes was arsenic for the purpose as represented by the defendant, that the injections were done in a careless and improper manner, contrary to proper standards and approved methods in that the defendant administered such injections into the plaintiff's arm without causing her to remove her dress and forced the injection needle through the dress of the plaintiff and that thereby the dyes and other matter from the dress were introduced into the wound caused by the injections, which became infected, causing the plaintiff serious injuries, that he prescribed certain pills, upon the taking of which rendered the plaintiff extremely sick and caused her to suffer severe pains, that also in the course of the treatment by the defendant, the plaintiff suffered from headaches, began to lose hair and sense of taste and that by reason of the carelessness and negligence of the defendant in his improper diagnosis and treatment, the plaintiff became sick, her arm became infected with the poison and her arm became stiff and black and blue and an abscess formed causing ruptures and eczema on various parts of her body and suffered loss of hair, and has been compelled to expend large sums of money for medical care, nursing and treatment

47 This action is brought by a guardian *ad litem* who alleges that the infant was brought to the defendant for treatment of a varicocele of the scrotum, and that the defendant promised and agreed to use his best skill and care and diligence in the treatment of the plaintiff, that he performed an operation upon the scrotum of the plaintiff, removing therefrom a portion of the varicose vein, and made an incision of the scrotum of about two inches in length, that his operation and treatment were careless and negligent and after the incision the wound was left open and not properly closed or held together and was not sutured causing the plaintiff to lose large quantities of blood and necessitating his being sent to the hospital for further treatment, where he remained for several weeks, as the scrotum had swelled, and he suffered great pain by reason of the infection due to the alleged negligence and carelessness of the defendant

48 In this action the plaintiff had employed the defendant to care and treat her during her confinement and at delivery, and alleges that the defendant promised personally to be present at the time of her delivery, that he failed to be personally in attendance upon delivery, but had sent a substitute in his place, and that by reason of the alleged carelessness and negligence of the defendant and not being present at the time of delivery, the child born to the plaintiff died within two days after birth and the plaintiff suffered injury to the genital organs and was confined to her bed for a long period of time and suffered bodily and mental pain and anguish, for which she seeks to be compensated by the defendant

49 This action is brought by the husband of the plaintiff in the case last above who seeks to recover damages of the alleged loss of services of his wife

50 This action is against two physicians, one of whom is represented by a separate attorney. The plaintiff alleges that while pregnant she had employed the defendants to attend and treat her, that she had become ill with influenza and that the defendants negligently and carelessly and without thoroughness in their examination and diagnosis, stated that the fetus of the plaintiff was dead and negligently determined to and did induce the discharge of the unborn child by using packing and tamponing to produce labor and that the operation was resorted to, and the plaintiff aborted of her child, a baby girl, weighing three pounds and born alive and that by reason of the premature birth wrongfully and negligently produced, the said child died and it is alleged by the plaintiff that the defendants failed to use ordinary means and method for determining fetus life and did not use proper care or skill in making their diagnosis, that by reason

thereof, the plaintiff suffered bodily and mental pain and anguish and seeks to recover money damages from the defendants

51 This action is brought by the husband of the plaintiff in the case last above against the same defendants to recover for the alleged loss of services of his wife

52 In this action, which is brought against two physicians, the plaintiff alleges that she had employed the defendants to attend, treat and care for her and cure her of her malady, that she was suffering internally from an infected appendix and broken gall bladder and to cure her necessitated a surgical operation for the purpose of removing the appendix and gall bladder, that the defendants performed said operation by making an incision in her abdomen and removed her appendix and gall bladder, that the defendants did not use proper care and skill in the treatment of the plaintiff and negligently and carelessly failed to entirely remove the medicated gauze packed by them into the abdomen of the plaintiff in the performance of said operation and permitted said gauze to remain in the abdomen for a long period of time, by reason of which it became putrid, causing noxious matter to escape from the said incision, and prevented the wound from closing and healing and necessitated the performance of another surgical operation

53 This action is brought by the husband of the plaintiff in the case last above to recover for the alleged loss of services of his wife

54 The plaintiff here alleges that he employed the defendant to cure him of pains in the back and for that purpose the defendant administered electrical treatment, that the defendant was negligent and careless in the administration of the electrical treatment and inflicted upon the back of the plaintiff a second degree burn, two and a half by three inches, which has greatly injured the plaintiff's health and constitution and he has suffered great pain and obliged to expend much money in endeavoring to be cured of his injury

55 This action is brought by an administrator to recover for the alleged death of his intestate, the plaintiff claims that the defendant undertook to treat his intestate for cramps and pains in his left leg, that the defendant did not use proper care and skill and directed his agent or servant to place the intestate's leg in a heating or baking machine and subject the leg to the heat and that in the baking treatment the intestate's left leg was burned to an extent which made amputation of the left leg necessary, that as a result of said burning and amputation there followed endarteritis and gangrene and septic poisoning resulting in the death of said intestate

56 The plaintiff in this case alleges that his wife gave birth to a child on full time and under normal conditions and that the defendant undertook to treat and care for her in her confinement and was negligent and careless in his treatment, that the placenta was torn in such a manner that a large portion thereof remained in the womb which caused septicemia and that the plaintiff's wife died as a result thereof, wholly and solely by reason of the lack of care and negligence of the defendant

57 Action by an administrator to recover for the death of his intestate, a girl of about fourteen years of age, it is alleged that the defendant was a throat specialist and was called by the plaintiff to treat his infant daughter who was suffering from a peritonsillar abscess and that he was so careless and negligent in his operation and treatment of the child that said child died within a few days after the operation was performed by the defendant

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58 Action instituted by an administrator to recover for the death of his intestate, a child of about two

years of age, the plaintiff alleges that said intestate was suffering from summer complaint and that the defendant had been called to treat and care for said intestate, that in his care and treatment he prescribed a powder containing a drug which it is alleged was dangerous and that said intestate died as a result of having taken the powders prescribed by the defendant which were of excessive and injurious doses and improperly prescribed, it is further alleged that the defendant failed to properly diagnose the infant's condition and if he had exercised proper care and skill he would not have prescribed the medicine given to the infant.

59 The plaintiff had engaged the defendant as a surgeon to operate upon her tonsils and for the purpose of removing such tonsils, the defendant performed an operation, it is further alleged that the defendant was negligent in that he gave to the plaintiff a visibly extremely nervous patient a local anesthetic instead of a general anesthetic that he failed to observe that the needle was not retained in the hypodermic syringe after the administration of the anesthetic and that he ignorantly performed an operation upon the tonsils without observing that the needle of the hypodermic syringe had broken and remained within the tissues of the plaintiff's throat and had not removed said needle from the tissues that he was negligent in having permitted the plaintiff to leave his office with the broken needle still remaining in the tissues of her neck or throat and that her life and limb were thereby endangered that by reason thereof she suffered malnutrition slow strangulation modified lockjaw unnecessary inflammation of the jaws and is still more or less subject to paralysis poison and gangrene

60 This action is brought by the husband of the plaintiff in the case last above to recover for alleged loss of services of his wife

61 In this case the plaintiff a woman alleges that she had employed the defendant to treat her for an illness from which she was suffering and in connection with the treatment of the plaintiff the defendant inserted into her back a needle and that through his carelessness and negligence said needle was broken off and remained in the body of the plaintiff and that he permitted the broken needle so to remain in the body of the plaintiff and did not remove it and that she has been permanently injured in body and mind as a result thereof and prevented from performing her usual duties and caused to expend large sums of money for further medical and surgical treatment

62 This action is brought by the husband of the plaintiff in the case last above for the alleged loss of services of his wife

63 The plaintiff a pregnant woman alleges that she had employed the defendant to care for her during her pregnancy and at the time of her delivery and that the defendant while treating the plaintiff and when she was about to deliver the child left and abandoned her while she was in this condition and failed to return at any time thereafter and by reason of his abandonment she suffered great pain and anguish and various operations were necessitated and she was caused severe internal and external injuries for all of which she seeks to recover damages from the defendant

64 This action was brought by the guardian ad litem of a boy about nineteen years of age who while riding a motorcycle, came into collision with an automobile and sustained a fracture of the left leg about seven inches above the knee and that the defendant was engaged to treat said fractured leg it is alleged that the defendant was negligent and careless in his treatment in that he did not properly set the bones of said fractured leg nor did he give it proper care attention or appliances nor used proper skill in the treatment of the leg and that he had failed to take an X ray of the leg to determine the extent of the fracture

that said broken bones did not unite nor heal for a period of about eight weeks, that after that time the boy was operated upon for the purpose of procuring a union of said broken bones and about one and a half inches of bone was removed causing a shortening of his leg, that after this operation the bones failed to heal and become cured and a second operation was necessary and that the bones of said leg still remain unhealed and uncured and a further operation is necessary it is alleged that by reason of the carelessness and negligence of the defendant in his treatment of the fractured leg his failure to ascertain for a period of eight weeks that the bones had not united, that he negligently assisted in the removal of the one and a half inches of bone from said injured leg and that the union could have been procured by the removal of a smaller amount of bone, that by reason of the alleged negligence of the defendant the plaintiff has suffered great pain and anguish been unable to perform his usual duties and has been caused to expend large sums of money in subsequent operations and in endeavoring to be cured of his injured leg, and that he has sustained a permanent injury in that his left leg has been shortened by the removal of the pieces of bone

65 The plaintiff here claims that he had employed the defendant to treat a sty on the upper lid of his right eye, that the defendant in the treatment of said sty cut and injured the plaintiff's eyelid and eye, causing irritation and inflammation swelling and infection in consequence of which the plaintiff lost the use and sight of his eye and has become disfigured and distorted, that said injuries were due solely to the negligence of the defendant

66 This is an action brought by a guardian ad litem who claims that the infant plaintiff had been struck upon the head sustaining a severe gash on the scalp and had been brought to the defendant for treatment of said scalp wound and it is alleged that the defendant in the treatment of said wound was so careless and negligent as to allow and permit filth dirt and other foreign substances to remain in said wound under the stitches and that the plaintiff has sustained cellulitis of the scalp bacteremia and metastatic abscesses and blood poisoning of the scalp and body and as a result of which the infant was confined to the hospital for a period of six months

67 This action is against two physicians, it is claimed by the plaintiff that they negligently and carelessly in pursuance of a conspiracy caused the plaintiff to be confined in a state asylum for the insane without having made any mental examination of the plaintiff and that in further pursuance of said alleged conspiracy, kept the plaintiff confined in said asylum that after the plaintiff's release from said asylum for a period of years this action was instituted to recover damages from the defendant physicians

68 This action was brought by the sister of the plaintiff in the case last above and is similar in its nature to the allegations of negligence and conspiracy the plaintiff here also being confined in the state insane asylum

69 This action is brought by a guardian ad litem who alleges that the defendant was called to treat his infant son who was suffering from a serious illness that he had made repeated requests for the defendant to call upon his infant son but defendant failed and refused to do so and that the infant's life thereby became endangered and that finally when the plaintiff went to the home of the defendant and urged him to call upon said infant the defendant failed to call but caused an ambulance to be sent to the home of said infant and said infant removed to the hospital of contagious diseases and that while in said hospital said infant contracted measles pneumonia and became so seriously ill that for a long period of time his life was despaired of

70 The plaintiff, a woman, claims that she employed the defendant to cure her of a skin rash on the upper part of her right limb, that the defendant did not use due care in his treatment and negligently administered X-ray treatment to the affected limb which resulted in an acute radiodermatitis and further that he did not use care and skill in endeavoring to cure the resultant acute radiodermatitis and negligently prescribed scarlet ointment to be applied to the affected limb and that the said treatment and prescription by the defendant resulted in a second degree radiodermatitis on the plaintiff's limb

71 The plaintiff claims that she was suffering from arthritis and went to the defendant for treatment, that in his treatment of the plaintiff it is alleged that the defendant broke the bones of the plaintiff's arms and leg and placed them in plaster casts, he also performed a second operation of like nature, it is further alleged that the defendant was negligent and careless in his treatment of the plaintiff and failed for a long period of time to treat or give the plaintiff any attention at all and that by reason of his negligence, the said bones in the plaintiff's arm and limb were not properly set nor healed nor cured and were permitted to remain out of place until it became impossible to properly set and cure the same, that she has been rendered permanently disabled and made sick and an invalid by the defendant's alleged negligence and prevented from attending to her business and vocation and required to spend large sums of money in endeavoring to be cured

72 In this case it is claimed that the plaintiff an elderly woman, went to the private hospital maintained by the defendant and engaged him to care and treat her for a dislocated shoulder and that the defendant failed to discover that the plaintiff had a dislocated shoulder and did not apply any remedies appropriate for the curing of said injuries and that said dislocated shoulder was permitted to remain out of place during all of the time she was in the defendant's hospital and under his care, that after leaving said hospital she consulted other physicians and for the first time was informed that her shoulder was dislocated and that it was then impossible to properly set and cure her dislocated shoulder and arm, she further alleges that she has been permanently injured thereby

73 The plaintiff, a woman, suffering from an infection of her thumb went to the defendant for treatment who operated upon the same, she claims that he was so careless and negligent in his operation and treatment of said finger that the same became permanently stiff and she has lost the use thereof

74 This action is brought by the husband of the plaintiff in the case last above to recover for the alleged loss of services of his wife

75 This action was instituted against two physicians by the administrator of deceased intestate, only a summons has been served in this action and no complaint has as yet been received setting forth the claim of the plaintiff

76 In this action no complaint has been received setting forth the plaintiff's cause of action

77 This case is by the plaintiff in case No 1 and is an action instituted in the Supreme Court asking now for thirty thousand dollars damages instead of two thousand dollars as in the County Court action, the facts are similar with the exception that the plaintiff now alleges that the defendant without the consent of the plaintiff, performed an operation upon him for the removal of the broken needle and that it was necessary for the plaintiff to submit to a further operation for the removal of the needle

78 This is an action brought by the husband of the plaintiff in case No 19 to recover for the loss of services of his wife

In the trial and preparation of these cases Counsel has received courteous co-operation, not only from the defendants, but also from other members of the medical profession, and has always found a willingness on the part of physicians to give expert testimony when the same was needed. The members of the medical profession have unselfishly rendered aid and assistance to Counsel and have willingly testified, on behalf of the defendant physician, without compensation or thought of the same and with loss and inconvenience to themselves, in instances devoting their entire time from three days to an entire week, in attendance in court

All of which is respectfully submitted

GEORGE W. WHITESIDE,

April 1, 1920

Counsel

## REPORT OF THE COUNCILOR OF THE FIRST DISTRICT BRANCH

### To the House of Delegates

At the annual meeting of the First District Branch, held at Poughkeepsie October 21, 1920, one of the most important subjects which came up for discussion was the Health Center Bill. This bill was thoroughly exploited by Dr. Charles C. Duryea, of the State Health Board, and discussed by all the members present. The Society went on record as opposed to the bill.

Since the meeting, I have communicated with all the County Societies in my District, and find not one of them approves of the Health Center Bill. There seems to be a general feeling that we do not want paternalism in this State, as experiences in other countries, especially Germany and Austria, have shown it to be a complete failure in regard to the medical profession.

Dr. Kevin, President of the State Society, spoke of "The Future Position of Health Centers, and the Part the State Society Should Assume."

Dr. Hulett, President First District Branch, spoke on "Health Center Insurance and Individualism."

Other papers presented were by Dr. Daniel B. Hardenbergh on "Hypothyroidism," Dr. Charles Gilmore Kerley on "Unappreciated Agencies in the Defective Development of Children," Dr. Edward Livingston Hunt, Secretary State Society, on "Syphilis of the Nervous System in Children," Dr. J. P. Hoguet on "Direct Hernia," and Dr. Henry Lyle Winter on "Encephalitis Lethargica."

The following officers were elected for two years: President, George A. Leitner, First Vice-President, Edward C. Rushmore, Second Vice-President, John A. Card, Secretary, Charles E. Denison, Treasurer, John T. Howell.

Respectfully submitted,

JOSEPH B. HULETT,

April 15, 1921

President

## REPORT OF THE COUNCILOR OF THE SECOND DISTRICT BRANCH

### *To the House of Delegates*

The Second District Branch of the Medical Society of the State of New York is very different from the other District Branches for the reason that the Associated Physicians of Long Island, a very large and active society, takes the place of the District Branch. This matter I have taken up with the last and present presidents of the State Society, and it was decided that inasmuch as it was absolutely necessary that every district have a representative at the Council, that last year we would only have a meeting for the election of officers. This election took place immediately following the fall meeting of the Associated Physicians of Long Island at the Garden City Hotel. The following officers were elected: President Arthur D. Jaques, First Vice-President Frank H. Lasher, Second Vice-President Martin M. Kittell, Secretary-Treasurer, Richard F. Seidensticker.

Respectfully submitted

FREDERICK C. HOLDEN

April 15, 1921

President

## REPORT OF THE COUNCILOR OF THE THIRD DISTRICT BRANCH

### *To the House of Delegates*

During the year I have visited each of the seven County Societies of the Third District. The Societies, all of which have held regular meetings during the year, are striving to increase the scientific knowledge of their members and are giving much attention to the discussion of legislative matters.

The proposed Health Center Bill received the greatest attention. Sentiment seems to be mostly against it, although a few think there may be some good in it.

The annual meeting was held in Hudson on October 14. The attendance was large and deep interest was manifested in all the papers.

The meeting went on record in favor of "Annual Registration."

Great credit is due to Dr. George W. Vedder, President of the Columbia County Medical Society, and his corps of assistants for the success of the meeting.

Respectfully submitted

LUTHER EMERICK, President

April 15, 1921

## REPORT OF THE COUNCILOR OF THE FOURTH DISTRICT BRANCH

### *To the House of Delegates*

The condition of the medical profession in the Fourth District Branch is very encouraging. Owing to the geographical location of this

Branch along the northeastern edge of the State the eleven counties comprising it are quite out of touch with each other and the northern counties are over two hundred miles distant from the southern counties. This makes visitation of members to other society meetings of the district quite difficult.

It seems as if the least populous counties have larger and more enthusiastic meetings, as the regular meetings give the members an opportunity to meet and exchange views.

The agitation of the profession of the State over medical legislation, especially Compulsory Health Insurance, Annual Registration and the Health Centre Bill, seem to have had a good effect in amalgamating the members of the profession in the district and awakening them to the importance of working as a unit under the guidance of the State Society.

The profession in general is very strongly opposed to all three of the bills mentioned and only the nature of their duties and distance from Albany has prevented them from making their voice heard more emphatically at the hearing of the bills.

All the societies of the Branch have held good meetings with excellent scientific programs. A number of special meetings of County Societies have also been held for the purpose of acting on business of importance, particularly legislation.

In this district the majority of medical men are members of the County Societies.

About the only illegal practitioners are a few chiropractors.

The Fourth District Branch includes quite a section of the rural district of the State as it embraces a good share of the Adirondack Mountain area. The counties of Essex, Hamilton, Clinton, Franklin and St. Lawrence are all sparsely populated with many small hamlets.

The doctor in many of these communities has a large territory to cover and his pecuniary reward is not large but his reward is largely in the knowledge of duty well done and the satisfaction that comes to one who is of service to his fellow man.

Operative cases must be transported to the nearest hospital, of which there are a number of excellent ones in this northern section. Cases can usually be transported by train or automobile and since the State has developed the system of good roads, very few suffer from want of prompt attention. Almost every town has a good hospital and the public and the profession both appreciate and avail themselves of the advantages of hospital treatment. Each hospital has become a medical center for a large area without the paternal influence of the State.

Rather than send an expert to a community to diagnose cases of tuberculosis, for instance, it would probably be much more advantageous for the State to assist in developing a local expert in that work by giving him the opportunity of training in one of the State institutions.

There are sufficient physicians in the district, but they are grouped in the larger towns where many specialize in different departments and to this medical center come the more serious cases from the surrounding country.

The law of supply and demand with the professional ambition of the country doctor to render good service will take care of the medical situation in the rural communities if the State keeps its hands off. Lack of medical service in the country districts is largely a bugaboo born in the minds of welfare workers of the large cities or the capital districts.

The annual meeting of the Branch was held in Saratoga on September 7, 1920, and a very interesting program was presented.

The hospitality of the Saratoga County Medical Society was extended to the District Branch on this occasion and was very helpful in making this meeting a success.

Medical men in the northern counties, particularly St. Lawrence, Franklin, Clinton and Essex, are practising under the handicap of not having a laboratory available for clinical work, as the nearest laboratory is the State laboratory at Albany. As the counties are small they have not been in a position to support county laboratories.

A committee was appointed by the District Branch to try to devise some way to maintain a laboratory in the northern counties, but so far their efforts have been in vain. A number of hospitals are maintained in this section and the need of a laboratory is greatly felt.

Respectfully submitted,

T. AVERY ROGERS, *President*

April 15 1921

#### REPORT OF THE COUNCILOR OF THE FIFTH DISTRICT BRANCH

##### *To the House of Delegates*

The Fifth District Branch has had a satisfactory year. Its annual meeting and the meetings of the constituent county societies have been of high grade and reasonably well attended. As is true in general throughout the State, there are a considerable number of fully qualified physicians residing and practising in this district who are not members of our organization. We would be glad to take part in a State-wide campaign to bring the membership up to 100 per cent of those who are eligible.

Aside from scientific matters, the principal subject of discussion during the past year was the proposed Health Center Bill. It was considered at both regular and special meetings of the constituent county societies and was the leading subject for the program at the annual meeting of this Branch. Sentiment is all but unanimous against it, the argument being as follows:

Both laymen residing in remote districts and the doctors who serve them agree that the sick are better cared for now than twenty years ago, when there were many more doctors but no State roads nor automobiles. Doctors are better qualified to give good care and, except when roads are blocked in winter, they are able to reach their patients more quickly than was the case when doctors resided in the smallest hamlets but traveled by horse on unimproved roads. Consultations by experts from medical centers can now be had in a few hours, thus making the best diagnosis and treatment available with much less than the old time delay. Also patients who are not bedridden can easily and frequently do motor or go by trolley to distant towns to obtain expert advice. The above advantages come very largely through improved means of transportation. Evidently what is needed is not Health Centers, which people must come to and which can be just as completely storm-bound as the present medical centers, but better means of transportation in the remote districts. Money might better be spent in keeping the State roads open to motor traffic in the winter and in improving bad roads than in subsidizing laboratories, hospitals and their staffs in small towns. In the Fifth District Branch people are usually less than five miles and rarely more than ten miles away from their nearest doctors. In fact they often send several miles farther than necessary in order to get the doctor of their choice, and even then they get prompt attention. Very rarely does a consultant need to travel more than fifty miles to reach his patient, but longer trips are not infrequent because consultants living farther away happen to be desired. Except when snow blocks the roads, motor transportation rather than railroad is the method of choice because of the great amount of time saved.

More physicians are desirable in the rural districts, but in the Fifth District of New York State it is a fact that the medical care given to people in remote sections is of better quality and usually is more promptly rendered than in former days.

To illustrate I queried a farmer whose nearest doctors are three miles in one direction and seven miles in the other. Each of these nearby towns (1,500 population) has only half as many doctors as thirty years ago. The

thought that medical care might be poorer was entirely new to this man, but, after reflection, he said it seemed to him the care was at least as good as in former times. His wife was at that time under the care of a doctor from the town seven miles away because they thought this doctor might be more skillful in the particular sickness. Also, one night last winter a man living in a thick woods developed acute appendicitis. The next morning a doctor was called from fifteen miles away, although there was a doctor only eight miles away. He drove seven miles over State road, four miles over country road, then four miles over a frozen reservoir, thus reaching the patient promptly without getting stalled in the impassable road through the woods. Operation having been decided upon, the telephone brought a surgeon and nurse from Syracuse, fifty miles away, and at 1 P.M. of the same day the patient's ruptured appendix had been removed and he had begun an uninterrupted convalescence. This prompt service could not have been rendered had the doctors been obliged to force their way over the four miles of unbroken road through the woods, but a nearby Health Center would not have helped the situation.

Opposition to all health insurance legislation is practically unanimous, and such bills are believed to be sure of defeat in the Legislature.

There seems to be no one with a good word for the new regulations regarding narcotic drug control and there is a universal demand for the repeal of the State law and the abolition of the department. It is believed that the United States law (Harrison Act) regarding habit-forming drugs is sufficient.

The arguments for and against yearly registration of physicians are not generally known, but the prevailing opinion is against annual registration.

Recognition of chiropractors as intellectually or legally qualified to practice medicine is condemned universally, but an amendment permitting the practice of chiropractic by people having the qualifications now required of osteopaths would be generally approved eventually. Licensing the chiropractors who are now practicing is unsafe and wrong.

There is a complaint regarding the ethics of physicians representing the Compensation Commission and insurance companies operating under the Workman's Compensation Act. Some of these doctors examine patients and investigate their treatment, entirely disregarding the attending physicians. This does not make for good feeling or square dealing. There is a general undercurrent of dissatisfaction with the Compensation Act, due principally to limitation of the patient's choice among physicians.

Respectfully submitted

WILLIAM D. ALSEVER  
President

April 15, 1921

## REPORT OF THE COUNCILOR OF THE SIXTH DISTRICT BRANCH

### *To the House of Delegates*

The Sixth District Branch comprises the counties of Broome, Chemung, Chenango, Cortland, Delaware, Otsego, Schuyler, Steuben, Tioga and Tompkins.

Broome County holds four meetings during the year.

Action was taken in unqualified disapproval of the compulsory Health Insurance, Health Center and Chiropractic Bills. Unanimous approval was given to the abolishment of the State Narcotic Commission. The Society also approved of the Annual Registration Bill.

There are no isolated towns in the county needing physicians.

Chemung County holds four meetings during the year.

Adverse action was taken relative to Compulsory Health Insurance, Health Center and Chiropractic Bills. Action taken favoring the abolishment of the State Narcotic Drug Control Commission.

Opinion is divided relative to annual registration, the balance being in favor of the same.

There are no isolated communities in the county needing physicians which are not adequately cared for by physicians from the neighboring larger communities.

Chenango County holds two regular meetings.

Action taken in unanimous disapproval of Compulsory Health Insurance, Health Center and Chiropractic Bills. Unanimous action was taken in favor of the abolishment of the State Narcotic Drug Control Commission. No action taken relative to the Annual Registration Bill.

There are four towns in the county ten to twenty miles from the larger centers, with no rail connection and only partially served by State highway, in which there are no physicians.

Cortland County holds quarterly meetings.

The Society took definite action in opposition to Compulsory Health Insurance, Health Center and Chiropractic Bills. It also went on record as favoring the abolishment of the State Narcotic Drug Control Commission and took active steps to this end through their Legislative Committee.

There are some isolated communities in this county, but they are reasonably cared for by the physicians of the neighboring larger towns.

Otsego County holds two regular meetings.

The Society is absolutely opposed to the Compulsory Health Insurance, Health Center and Chiropractic Bills.

It is unanimous in its desire for the abolition of the State Narcotic Drug Control Commission. No action has been taken relative to the Annual Registration Bill.

There are no isolated communities in the county not adequately supplied by physicians.

Schuyler County holds two regular meetings.

Action was taken in opposition to Compulsory Health Insurance, Health Center and Chiropractic Bills. No action was taken relative to the Annual Registration Bill.

No action has been taken relative to the Narcotic Drug Control Commission, but the general feeling is in favor of the abolishment of the Commission.

There are no inadequately cared for communities in the county.

Steuben County holds two regular meetings.

Definite action was taken in opposition to Compulsory Health Insurance, Health Center and Chiropractic Bills.

No action was taken relative to the State Narcotic Drug Control Commission. The feeling seemed to be universal that the same should be abolished.

Opinion is divided relative to the Annual Registration Bill, the opinion being against the annual registration feature.

There is one town sufficiently isolated to be quite seriously in need of a physician.

Tioga County holds four regular meetings. The Society is a small one and the attendance is even smaller than it should be.

The Society went on record as opposed to Compulsory Health Insurance and Chiropractic Bills. There are a few men in the county who favor the Health Center measure.

Opinion seems to be divided as to the Narcotic Drug Commission. No action taken relative to the Annual Registration Bill.

There are no isolated communities in the county not adequately cared for by physicians of the surrounding towns.

Tompkins County holds monthly meetings for nine months of the year. Papers of general interest, case records and reports were presented and clinics were held.

This county has been active through their Legislative Committee in opposition to Compulsory Health Insurance, Health Center and Chiropractic Bills.

It approves of the abolishment of the State Narcotic Control Commission, but recommends that the State compel the physician to register his Federal permit with the County Clerk and that the State provide some means to control the addict and peddler.

It also recommends some control of the peripatetic advertising practitioner and chiropractor.

There are no uncared for isolated communities in the county.

In Delaware County the number of physicians is so small and scattered that they have been unable to obtain a quorum at any of their meetings.

The men there feel that it would be better that they give up their Society and affiliate with some adjoining county, they being in favor of Otsego County.

The feeling up-State seems to be unanimous against any form of Compulsory Health Insurance and the licensing of chiropractors unless they meet the requirements of the present Medical Practice Act.

The feeling is nearly the same relative to the Health Center measure, in that it would fail in the object for which it is proposed—namely, to give relief to the isolated communities.

The establishment of such centers would of necessity have to be where there was a medical staff for the care of the patients.

If this center is to be the place where the sick are to be examined and cared for, the outlying physician would of necessity be driven to come closer to this center, inasmuch as his patients are to be brought there. This would rather tend to a greater centralization of the physicians than otherwise.

No form of regulation is going to force the present highly trained physician to go into the small, isolated community, with its living disadvantages and the necessarily limited pecuniary recompense and professional isolation.

The law of supply and demand is the great controlling factor here as well as in commercial lines. The high death rate of physicians in active practice, as set against the decreasing numbers of graduates, owing to the greatly increased standards and time necessary to the young man to enter on his life's work, tend to continually widen this gap.

The unsettled state of the profession, owing to the tendency to the enactment of discriminatory legislation, is lessening the number of matriculates.

What the country needs is more physicians and less regulation. The rank and file of the profession is as honest and conscientious as any other class of men, and do not need to be hedged about by a lot of laws which treat each one as a potential criminal, simply because there is an occasional one among them.

In the matter of the State Narcotic Drug Control, the consensus of opinion seems to be that the attempting to work under two varying acts and the ever-changing rulings of the Commission, is putting an unnecessary burden on the rank and file of the profession in an attempt to catch or put out of business a few crooks, which it seems to largely have failed to do.

This situation has created an almost universal demand that the Commission be abolished

Respectfully submitted,

LEON M KISOR

*President*

April 15, 1921

#### REPORT OF THE COUNCILOR OF THE SEVENTH DISTRICT BRANCH

##### *To the House of Delegates*

The past year has been one of reconstruction in so far as a vast number of our profession having returned from their military service, have resumed again their private practices

Our various County Societies throughout this district have all taken an active interest in all legislative matters pertaining to public health and have been very active in their opposition to the Health Center, the Narcotic Drug and Chiropractic Bills

And so far as I have been able to observe, I find that with the cessation of war activities many physicians have resumed their practices in smaller towns and with better facilities for travel—automobiles good roads and many of our smaller villages having hospitals, the sick can and do receive better medical and surgical care than has ever been possible to give them in the past

Our annual meeting held in Rochester last October, proved to be very interesting and beneficial and was very largely attended

Respectfully submitted

OWEN E JONES,

*President*

April 15, 1921

#### REPORT OF THE COUNCILOR OF THE EIGHTH DISTRICT BRANCH

##### *To the House of Delegates*

The Eighth District Branch of the Medical Society of the State of New York comprises the Counties of Niagara, Orleans, Erie, Genesee, Wyoming, Chautauqua, Cattaraugus and Allegany

This group of counties represents all types, some are the so called rural counties, others contain some of the smaller cities of the State, and one the second largest city of the State

This diversity of types makes for a diversity of the problems that each County Medical Society has to solve

As a result of visitations correspondence and telephoning the Councilor of the district is fairly familiar with the situation in each of the various County Medical Societies of the district, and is pleased to report that the morale of the membership is excellent There

has been a marked improvement in the attendance of the meetings and in the character of the discussion and promptness of action regarding legislative matters affecting the medical profession particularly

Practically every County Medical Society in the district has recorded its attitude regarding the various bills introduced in the Legislature affecting the medical profession and has sent delegates to Albany to attend at least one of the hearings

The burning issue with us at present is the Health Center Bill introduced in the Legislature by the State Commissioner of Health as a solution of the problem of insufficient number of physicians in the rural sections

Outside of Erie County, each County Medical Society has expressed unalterable opposition to the measure because it fails to take the physician to the home of the patient

In Erie County we have the Health Center system functioning in Buffalo, but there has been such a diversity of opinion regarding its success that the proposition was recently submitted to the medical profession of Erie County in the form of a questionnaire

The response up to date has not been satisfactory, since only about one hundred of a membership of nearly eight hundred has paid any attention to it

Very evidently this doesn't prove anything, however a large part of the membership of Erie County feels that even if the Health Center scheme proves to be adaptable to urban conditions, it does not necessarily follow that it would be desirable in the rural sections

We feel that the scarcity of physicians in the rural sections is not due to the economics of the situation, but that the fault is even more fundamental, and has to do with the education of the medical student

We are not teaching them to be general practitioners

We are filling them so full of the refinements of the various specialties, and the technique of scientific laboratory work that they leave college unable to make a bed-side diagnosis

The result is that many of our present-day graduates who would make splendid general practitioners with the instruction of twenty years ago, are afraid to leave the protecting influence and advantages of their Alma Mater

We would, therefore seriously recommend that the curricula of the various medical colleges of the State be carefully studied and revised with the idea of training the students to become, first, good general practitioners, and, second to become specialists if they so desire by taking a more extended course

Respectfully submitted

HARRY R TRICK

*President*

April 15, 1921



## HOUSE OF DELEGATES

The regular meeting of the House of Delegates of the Medical Society of the State of New York, was held in the building of the Medical Society of the County of Kings, Brooklyn, New York, Monday, May 2, 1921, at 2 30 P M

President, Dr Richard H Kevin, Brooklyn, Dr E Eliot Harris, Speaker, presiding, Dr Dwight H Murray, Vice-Speaker, Dr Edward Livingston Hunt, Secretary

The Speaker called the meeting to order and stated that the first order of business was the appointment of a sufficient number of reference committees to conduct the business of the House of Delegates, and appointed the following committees

### Reference Committee on Reports of Officers

Drs Luzerne Coville, Tompkins, Thomas C Chalmers, Queens, Owen Jones, Monroe, Frank Overton, Suffolk L W Presley, Richmond

Reference Committee on Reports of Committees  
Drs Charles G Stockton, Erie, J M Winfield, Kings, Thomas H Farrell, Oneida, James F McCaw, Jefferson Charles H Peck, New York

Reference Committee on Legal Counsel Drs Fredric F Sondern New York, H Burton Doust, Onondaga Russell S Fowler, Kings, Harry Trick, Erie, Edgar Vander Veer, Albany

Reference Committee on Miscellaneous Business  
Drs Grover Wende, Erie, Arthur Bogert, Kings, Albert W Ferris, Schuyler, Walter H Kidder, Oswego Howard L Prince, Monroe

THE SPEAKER Mr Secretary, what have you to say on the subject of calling the roll?

THE SECRETARY The roll call is not yet complete. I move it be deferred until tomorrow morning's session. Motion seconded and carried.

THE SPEAKER The next is the reading of the minutes of the previous meeting.

THE SECRETARY As these minutes have been printed in the NEW YORK STATE JOURNAL OF MEDICINE I move that the reading be dispensed with, and that they be adopted as printed. Motion seconded and carried.

THE SPEAKER The next is the address of the President, Dr Richard H Kevin.

PRESIDENT KEVIN I will take advantage of this opportunity to say that Brooklyn welcomes you and hopes that you will enjoy every moment of your stay here. I am sure you will find sufficient interest not to run away when the House of Delegates will have completed its mission. The Public Health exhibits are across the street in the Armory, and we desire not only your interest but your criticism, if any.

Words fail me to express my personal appreciation of the herculean task accomplished by the Committee of Arrangements, headed by its master mind, William Francis Campbell. The work that they have so assiduously performed during the past three or four months is more than one can compute, and their heart and soul have been in it in preparation of this, your first appearance in Brooklyn in the history of the society, an event we hope that you will appreciate.

THE SPEAKER The report of the President will be referred to the Reference Committee on Reports of Officers.

The next is the address of the Speaker. The Speaker's address is printed, and, if you wish I will present the closing part of it, Mr Vice-Speaker, will you take the chair?

DR DWIGHT H MURRAY, Vice-Speaker, assumed the chair.

VICE-SPEAKER The motion that the Speaker present the closing part of his address is before you. Motion seconded and carried.

The Speaker read the closing part of his printed address and it was referred to the Reference Committee on Reports of Officers.

The Speaker resumed the chair.

THE SPEAKER The next is the Report of the Council.

It was moved that inasmuch as the report of the Council was printed and had been sent to every member, its reading be dispensed with. Motion seconded and carried.

THE SPEAKER The next is the report of the Committee on Publication. It was moved that, inasmuch as the report had been printed and distributed the reading be dispensed with, and it be referred to the Reference Committee on Reports of Officers.

### THE SPEAKER Report of Secretary

Inasmuch as the report has been printed and distributed, it was referred to the Reference Committee on Reports of Officers.

THE SPEAKER The report of the Treasurer. The report has been printed and it will take the usual course, and be referred to the Reference Committee on Reports of Officers.

The next is the report of Standing Committees Committee on Arrangements, Dr Campbell.

It was moved that inasmuch as the report had already been published, the reading be dispensed with. Seconded and carried. Referred to the Reference Committee on Standing Committees.

THE SPEAKER Committee on Medical Economics, Dr Winter.

Dr Winter announced that there was nothing further to report, in addition to that already printed. The report was referred to the Reference Committee on Standing Committees.

THE SPEAKER The committee on Public Health, and Medical Education, Dr Van Cott.

As the report had already been printed, the reading was dispensed with, and it was referred to the Reference Committee on Reports of Standing Committees.

THE SPEAKER Report of the Committee on Legislation, Dr Rooney.

As the report had been distributed to all the delegates, it was referred to the Reference Committee on Standing Committees.

THE SPEAKER The next is the report of the Committee on Medical Research, Dr Sondern.

The report as printed, was referred to the Reference Committee on Reports of Standing Committees.

THE SPEAKER The next is the report of the Special Committee on By-Law Amendment, Dr Wende.

It was referred to the Committee on Miscellaneous Business.

DR DOUGHERTY Will the minority report go with the report of the Committee?

THE SPEAKER I will dispose of it by asking the House whether it will receive the minority report and permit it to go to the Reference Committee with the Report of the Special Committee on By-Law Amendment. The House voted to receive and refer the Minority Report to the Committee.

THE SPEAKER There is a Special Committee on Public Health and Legislation of the Greater City of New York, Dr Fiske.

Report not ready.

Inasmuch as the report of the sub-committee of the Council on Executive Secretary is printed, it is referred to the Reference Committee on Reports of Officers.

THE SPEAKER Report of Legal Counsel. I would like to introduce to the House of Delegates, Mr George W.

Whiteside the Legal Counsel of the Society and his associate, Mr Oliver

MR WHITESIDE As my report as Counsel as printed and distributed to the members was only up to April 1st, I will present the following to bring it up to date

New York, May 2 1921

To The House of Delegates of the  
MEDICAL SOCIETY OF THE STATE OF NEW YORK  
Gentlemen

Supplementing the report heretofore submitted on April 1, 1921 counsel begs to submit the following up to May 1, 1921 Since April 1 1921, three new cases have been received and one case has been disposed of and discontinued making a net gain of two cases since April 1

The time consumed by counsel and his associates in the work of preparation trial of cases appearances in Court on motions etc travelling and away from the office up to April 1 1921 are as follows

	Hours
Law work at office including preparation conferences examination of witnesses, examination of fact and law etc	990
In Court in trial of cases	121
In Court motions etc	61
Away from office travelling etc	545
<b>TOTAL HOURS</b>	<b>1717</b>
<b>Miles travelled</b>	<b>5960</b>

For the seven month period September 1 1920 to April 1 1921 there were available after deducting Sunday and holidays 174 working days, and considering a working day of a professional man as averaging seven hours on week days and four hours on Saturdays there were available 1 125 hours per man of working time As there were two men working on these cases there was a total of available time for such work of 2 250 hours Deducting from the total number of 1 717 hours consumed as above set forth in the schedule the 545 hours consumed by travelling, etc away from the office we have a total number of actual working hours in the office and in court of 1 712 hours which constitute 50 per cent of the working time of both counsel and his associate in this work Counsel wishes to call attention to the fact that a large percentage of the available time of counsel and his associate has been consumed in the malpractice branch of counsel's activities for the Society The Society has expended during this seven month period for this work a total of \$6 050 The cost of operation for this period including cash disbursements and the proper proportion of overhead expenses allocated to this work on the basis of the time consumed amounts to \$3 350 which should be deducted from the total of \$6 050 received leaving therefore available for compensation for the work done the sum of \$2 700 On this basis the compensation to counsel per case received is \$31 and for time spent \$1 45 per hour

The Council at whose instance originally the legal counsel of the Society undertook this work under conditions that were trying well understands and appreciates that the period from September 1 1920 to April 1 1921 was to be regarded as more or less experimental and that counsel at the conclusion of such period would report his findings and his recommendations

It is apparent from the large number of cases to wit fifty seven that counsel received on September 1 1920 from his predecessor and that since said period there have been twenty seven new cases received as against twenty cases disposed of, that there has been in the past and is continuing in the present an accumulation of cases at an increasing ratio Councils

attention was soon given to this condition of affairs upon his analysis of the facts and the necessity for some plan of clearing the clogged condition of the calendar of malpractice cases has received his serious consideration It is both undesirable and annoying to the individual physicians who are sued to have their cases pending undisposed of for a long period due to these conditions This is the first defect in the legal machinery of the State Society's malpractice defense that requires remedy With the increased number of cases and the necessity of carrying so large a calendar of undisposed of cases the cost of malpractice defense under the present conditions would constantly increase This condition is undesirable and from the Society's standpoint of doubtful expediency considering the other activities of the Society that require disbursement of its funds

Through the State Society's defense plan uninsured men have had the best co-operation of their fellow members to prevent injustice and have received the benefits of a defense by the legal counsel of the Society The burden of judgments however has fallen upon the individual member to bear alone the Society providing no indemnity features Those members who have sought indemnity through insurance companies have had their cases defended by the companies and have not received the benefits of the State Society's defense This has been due to the fact that under the terms of their policy they are required to have their cases defended by the insurance companies counsel To bring about a better defense for those members who desire to carry such indemnity by procuring for them the co-operation of their fellow members and of the legal counsel of the Society under the Society's malpractice defense and at the same time to preserve for those members who do not desire such indemnity features a high order of malpractice defense and provide them likewise with the means of procuring an indemnity against judgments should they so desire the legal counsel of the Society, in conjunction with the Executive Committee of the Council has formulated a plan whereby indemnity may be added to the existing benefits of membership in this Society which shall be entirely optional with the members It has been learned that the increasing hazards in the practice of medicine have caused a number of insurance companies to discontinue writing physicians and surgeons liability insurance and that the few remaining companies have or will shortly announce an increase in their rates of upwards of two hundred to three hundred per cent All that is needed to make the malpractice defense plan of the Society complete is the addition thereto of an indemnity feature which shall not require any radical change in policy in the carrying on of the malpractice defense activity of the Society but shall simply be an addition to the benefits already provided for the members Legal counsel of the Society experienced difficulty in finding any large insurance company engaged in this line of business to cooperate with him to provide this additional feature to the Society's malpractice defense but finally procured the funds machinery and co-operation of the largest insurance company in the United States engaged in this class of business to write an indemnity policy for the members of the State Society against malpractice claims on a group plan the group unit being the County Society This plan is radically different from anything that has heretofore existed in that it is entirely optional with the members whether they will take the indemnity feature or not and if the indemnity feature is taken the member so protected shall in addition to the machinery provided by the insurance company for his protection have his case handled by or under the supervision of the Society's legal counsel In other words all doctors insured under the group plan will have their cases prepared and defended under the direction of or by the legal counsel of the Society and will receive the same co-operation of his brethren as though he were uninsured and the

fact that he has such indemnity will not be subject to any notice whatever by the public, by reason of the fact that his defense is conducted in the name and by the legal counsel of the Medical Society. This plan meets an objection that has heretofore been urged against doctors carrying such insurance, that is to say, that the fact that such insurance is carried by the doctor becomes known to the claimant, by reason of the participation of the insurance company and its representatives in the defense. This will not be so under the plan suggested, as all of such activities shall be under the direction of or by the legal counsel of the Society.

The plan provides that master policies may be written for a three-year term at an original cost of \$18 per year per member for \$5,000 in any one case or \$15,000 in any one policy year of 365 days. This rate is to be revised at the end of the experience period on a basis of cost plus two and one-half per cent profit for the Insurance Company. This manner of handling the rate and the arrangements made for handling claims and legal matters effectively makes the insurance feature a practical working part of the Society's defense plan, so that the Society offers insurance features without having to engage in the insurance business and set up large reserves therefor.

To put this plan into effect requires first the acceptance of the principle by a favorable vote of the House of Delegates, after which it will be immediately available through the County Societies. While this is purely an optional matter with each member, the success of the plan and the subsequent favorable revision of the rate will largely depend upon the extent to which it is supported by the membership generally.

While the operation of this plan may not result in an immediate reduction of the cost of the malpractice defense work of the Society due to the necessity of disposing of the present pending calendar of sixty-four cases, it is very evident that if a majority of the members of the Society desire the indemnity feature in addition to the Society's malpractice defense, that a larger proportion of the expense for malpractice defense of such members will fall upon the insurance company, thereby correspondingly reducing the expense to the Society, that if ultimately the Society's membership should be all insured under this plan there would be practically no expense for legal defense in malpractice cases that would not be borne by the Insurance Company, and the Society thereby could procure a larger portion of counsel's time in other branches of the Society's activities, also it should not be forgotten that under this plan the present established centers from which to conduct investigations that are already adequately equipped with trained men maintained by the Aetna Life Insurance Company at Albany, Syracuse, Binghamton, Rochester, Buffalo and New York, can be made available under the direction of the counsel of the Society.

To establish a machinery of this character for the exclusive use of our Society would entail a prohibitive cost.

The cases now pending are distributed among the Counties as follows:

New York	24 cases	Albany	2 cases
Kings	6 "	Dutchess	2 "
Erie	5 "	Chautauqua	2 "
Onondaga	5 "	Herkimer	1 case
Westchester	4 "	Niagara	1 "
Bronx	4 "	Oneida	1 "
Schenectady	3 "	Monroe	1 "
Queens	2 "	Nassau	1 "

It has been the observation of counsel that while there are fewer cases proportionately brought in the rural counties, when they are brought they are usually more serious in character, by reason of the fact that up-State lawyers are inclined to be more discriminating

in the bringing of such cases than some of the attorneys in the larger cities who regard any case for the plaintiff as having a certain nuisance value, irrespective of its merit. While in New York County we find a larger number of cases, we likewise have a much larger proportion of cases dismissed without trial than in the other counties.

The indemnity feature in the plan proposed is peculiarly valuable to the rural communities, because of those facts already referred to, and it is equally important to those communities that all of the benefits of the State Society's malpractice defense should continue as heretofore to be available to them. The plan suggested and urged will bring these benefits clearly to the members of the Society.

Respectfully submitted,

GEORGE W. WHITESIDE, *Counsel*

The report of the Counsel was referred to the Reference Committee on Report of Legal Counsel.

**THE SECRETARY.** In accordance with the By-Laws, Chapter I, Section 2, I wish to propose for retired membership Dr. Albert H. Briggs, Dr. Benjamin L. Lothrop, Dr. Grace Peckham Murray, Dr. George W. Pattison, Dr. Peter W. van Peyma, Dr. Lauretine Rouchell, and Dr. James M. Barrett.

**THE SPEAKER.** They will be referred to the Reference Committee on Miscellaneous Business.

The Secretary announced that he had a communication from Dr. Dwight H. Murray resigning as a delegate to the American Medical Association owing to his election as Speaker of the House of Delegates of that Society. It was referred to the Reference Committee on Miscellaneous Business.

The Secretary read a communication from Dr. Joseph H. Blake to Dr. J. Richard Kevin, asking the approval of the Medical Society of the State of New York of Senate Bill number 1636, introductory 1312, dated April 6, 1921, incorporating the State Veteran's Relief Fund. It was referred to the Reference Committee on Miscellaneous Business.

The Secretary read a communication dated March 29, 1921, from the National Anæsthesia Research Society, recommending the establishment of a separate section on anæsthesia in the American Medical Association. It was referred to the Reference Committee on Miscellaneous Business.

The Secretary read a communication from Dr. Mark A. Milliken dated April 22, 1921, addressed to the Secretary of the Medical Society of the State of New York, including a resolution that the right to practice in one state should be extended to include the right to practice medicine in any part of the United States. It was referred to the Reference Committee on Miscellaneous Business.

Dr. Kosmak offered the following resolution:

**WHEREAS,** The many interesting and valuable papers presented at the scientific sessions of the annual meeting of the Medical Society of the State of New York should be available to the profession at large, and

**WHEREAS,** The authors of these papers are prevented by the present rulings of the Committee on Publication from publishing their papers in other journals except by special arrangement for simultaneous appearance with that in the State Journal, and

**WHEREAS,** The facilities of the present State Medical Journal are insufficient for the prompt publication of such papers, and in many cases a year may elapse before they do appear, therefore

**BE IT RESOLVED,** That it is the sense of this House of Delegates that the readers of papers at the scientific sessions be permitted to publish the same in the medical journal of their choice without being compelled to await a possible simultaneous publication in the State Journal.

Referred to the Committee on Miscellaneous Business.

Dr Delphey offered the following resolution

RESOLVED That the Medical Society of the State of New York is emphatically opposed to any scheme for Health Centres either wholly or partly controlled operated or subsidized by the State or National Government, and that the Delegates from this Society to the American Medical Association be and are hereby instructed to present this resolution to the House of Delegates of the American Medical Association at its coming session in June and to use every means possible to secure its adoption

It was referred to the Committee on Miscellaneous Business

Dr Van Etten offered the following resolutions

RESOLVED That the Committee on Publication be directed to separately list the Bronx physicians in the Medical Directory of the State of New York in the same manner as are listed the Physicians of New York and Kings Counties

RESOLVED That the Committee on Publication be directed to publish a list of hospitals of the State in the Medical Directory

RESOLVED That the Committee on Publication be directed to publish an alphabetical list of Physicians of the State of New York in the Medical Directory

Referred to the Reference Committee on Miscellaneous Business

Dr Phillips offered the following resolution

RESOLVED That the president be empowered to refer to the Council in conjunction with the legal counsel the revision of the Constitution and By Laws of the Society into a more harmonious scheme and in accordance with the proper legal aspect and to formulate a policy for future guidance together with the plans necessary to carry it into effect. The committee to cause its report to be published twice during the year in the official journal of the Society in time to allow full consideration by the members of the House of Delegates of the Society before final action thereon at the next annual meeting

Referred to Reference Committee on Miscellaneous Business

DR DOUGHERTY By instruction of the Medical Society of the County of New York I offer the following resolution

RESOLVED That the resolution adopted at the meeting of the House of Delegates in 1919 appointing a committee on Public Health and Legislation of the Greater City of New York, be rescinded

Referred to the Reference Committee on Miscellaneous Business

Dr Winter offered the following resolution

WHEREAS The present income of the Society is not sufficient to maintain the regular departments of the Society and furnish funds for any extraordinary expenses which may be incurred

BE IT RESOLVED That the emergency fund created by the House of Delegates on March 22 1920 by levying a per capita charge of \$2.00 on each member, be continued for the year 1921, and that each constituent County Society shall pay to the treasurer the amount of the charge for this fund on or before December 31 1921. The treasurer of each constituent County Society shall immediately proceed to collect from each member the charge of \$2.00 for the State Emergency Fund

Referred to the Reference Committee on Miscellaneous Business

DR WENDE Your Reference Committee on Miscellaneous Business reports that after consideration of the majority report of the Special Committee on By Law Amendment and the minority report presented by Dr Dougherty do recommend the adoption of the

majority report to wit that no change be made in the present method of determining the representation of the constituent County Societies in the House of Delegates of the Medical Society of the State of New York

It was moved that the recommendation of the Committee be adopted Motion seconded

THE SPEAKER Now will you state in a few words the recommendation of the Committee

DR WENDE The recommendation of the Committee is that the following amendment to the Constitution and By Laws which was submitted at the annual meeting held in New York City, March 22 1920, be not approved

Amend the Constitution, Article IV, by striking out the words each County Society shall be entitled to elect to the House of Delegates as many delegates as there shall be State Assembly districts in that county at the time of election except that each County Society shall be entitled to elect at least one delegate and except that whenever at the time of election the membership of a County Society shall include members from an adjoining county or counties in which there shall be no County Society in affiliation with this Society such County Society shall be entitled to elect from among such members as many additional delegates as there are Assembly districts in the county or counties so represented in its membership and inserting the words

The delegates shall be apportioned among the constituent societies in proportion to their actual active membership except that each constituent society shall be entitled to elect at least one delegate. The House of Delegates may from time to time fix the ratio of apportionment

THE SPEAKER The report of the Committee is that no change be made in Article IV of the Constitution. Those who are in favor of the report of the Committee which means that no action shall be taken upon that amendment will signify by saying aye, those opposed, no. Carried

DR HUNT I offer the following resolution

No member shall speak in a discussion upon any question before the House of Delegates for longer than five minutes except by consent of the House of Delegates

Referred to the Reference Committee on Miscellaneous Business

DR WENDE reported that the Reference Committee on Miscellaneous Business recommends the adoption of the above resolution

Seconded and carried

DR WENDE Your Committee on Miscellaneous Business reports that it approves the election of Drs A H Briggs Benjamin L Lothrop Grace P Murray George W Pattison Peter W van Peyma Laurence Rouchel, and James M Barrett as Retired Members of the Medical Society of the State of New York. Seconded and carried

DR WENDE The Committee reports that it disapproves of the establishment of a separate section on anesthesia of the American Medical Association and advises that the House of Delegates oppose the creation of such a section. Seconded

DR Dougherty moved that that section of the report of the Reference Committee referring to the establishment of a section on anesthetics in the American Medical Association be referred to the delegates of this Society to the American Medical Association. Seconded

DR Rooney moved that the question lie on the table. Seconded and carried.

DR WENDE Your Committee on Miscellaneous Business recommends the acceptance of the resignation of Dr D H Murray as a delegate to the American Medical Association. Seconded and carried

**DR WENDE** The Reference Committee on Miscellaneous Business urges emphatically, in reporting upon the matter of Health Centres, that the House of Delegates do oppose any scheme for creation of Health Centres, wholly or partially controlled by either State or National Governments, and that this House hereby instructs its delegates to the American Medical Association, to present to the House of Delegates of the American Medical Association, at the coming session in June the sense of the House of Delegates of the Medical Society of the State of New York as against the creation of such Health Centres

**DR EASTMAN** It seems to me we could add to this motion and I propose the following amendment, as follows

**RESOLVED**, That the Medical Society of the State of New York is emphatically opposed to "State Medicine," and to any scheme for "Health Centres," "Group Medicine," and "Diagnostic Clinics," either wholly or partly controlled, operated or subsidized by the State or National Government, and that the Delegates from this Society to the American Medical Association be and are hereby instructed to present this resolution to the House of Delegates of the American Medical Association at its coming session in June, and to use every possible means to secure its adoption

**THE SPEAKER** The Speaker suggests that as the amendment is quite lengthy it ought to be looked over carefully before action is taken

**DR DELPHEY**, who introduced the original motion said I accept the amendment

**THE SPEAKER** The question of the amendment is before you You have heard the motion as amended All those in favor say aye, opposed, no Carried

**DR PHILLIPS** I am introducing this at the request of Dr William F Campbell, of Brooklyn, at present working on the committee of the American Society on the Control of Cancer

**WHEREAS**, The American Society for the Control of Cancer is now engaged in organizing the whole country for an intensive educational attack on cancer, and

**WHEREAS**, It is self-evident that the medical profession should take the lead in bringing the essential facts of cancer control to the attention of the public and assist in every suitable way to curtail mortality from this disease, and

**WHEREAS**, Dr John M Swan of Rochester, has been appointed Chairman of the up-state committee of the Cancer Society

**BE IT RESOLVED**, That the House of Delegates of the Medical Society of the State of New York in convention assembled at Brooklyn, on May 2, 1921, does heartily indorse the efforts of the American Society for the Control of Cancer, and earnestly bespeaks the fullest co-operation of all the Branch Districts and County Societies in the State with the efforts of Dr Swan in his endeavor to disseminate useful facts concerning this disease to the laity, and to bring the members of the profession itself to a fuller appreciation of their responsibilities in this campaign

Referred to the Reference Committee on Miscellaneous Business

**DR WENDE** reported for the Committee on Miscellaneous Business as follows

Your Committee recommends the adoption of the resolution rescinding the resolution of the House of Delegates of 1919, appointing a special committee on Public Health and Legislation of the Greater City of New York Seconded and carried

**DR WENDE** The Committee on Miscellaneous Business recommends the approval of Senate Bill 1636, State Veteran's Relief Fund Seconded and carried

**DR BARTLEY** I inquired of several from my neighbors and they did not seem to know what they were voting for

It was moved that a reconsideration be had Seconded and carried

At the request of the Speaker the Secretary read Senate Bill number 1636, introductory 1312, dated April 6, 1921, entitled, "An Act to Incorporate the State Veterans' Relief Fund, for the amelioration of disabled veterans of this State who were in the Military or Naval Service of the United States during the World War and their dependents"

**DR ROONEY** I move that the report be adopted Seconded and carried

**DR WENDE** reported for the Committee on Miscellaneous Business as follows

Your Committee recommends that this House of Delegates instruct the Committee on Publication of this Society that a separate listing of the physicians of the county of the Bronx (similarly to the listing of the physicians of the New York and Kings Counties), be printed in the Annual Directory I move the adoption of the report Seconded and carried

**DR WENDE** Your Committee recommends that the Delegates disapprove of the publication of the list of Hospitals of the State in the Medical Directory, which list was dropped some years ago for economy's sake, it being still necessary to practice close economy in the publication of this annual directory I move the adoption of the report Seconded and carried

**DR WENDE** Your committee recommends that the Delegates disapprove of the publication of an alphabetical list of the New York State Physicians in the Medical Directory, because of the apparently unwarranted expense of this duplication of names, in view of the necessity for strict economy I move that the report of the Committee be adopted Seconded and carried

**DR WENDE** Your Committee recommends that the American Medical Association be urged to perfect a plan by which interstate medical practice may be made easier

**DR SONDERN** There was originally a resolution sent to the Committee on Miscellaneous Business The resolution reported is not the same as the resolution that was presented to that committee I believe the committee would better explain the substitution so that there may be no misunderstanding afterwards, particularly on the part of those who introduced the original resolution

**THE SPEAKER** While the Committee on Miscellaneous Business is straightening this matter out, are there any other committees ready to report?

**DR WENDE** Mr Speaker, with your permission we will rewrite that resolution

**THE SPEAKER** If there is no objection, the House gives permission to this committee to re-write the report

**DR WENDE** Your Committee recommends disapproval of the resolutions relating to publication of papers read at the scientific session of the Medical Society of the State of New York, because the maintenance of the State Society JOURNAL as a representative organ in competition with journals published by commercial concerns able to suitably pay for editorial and reference services, is more difficult, and the chief asset the State JOURNAL has in this competition effort is the possession of the exclusive right to the papers read at the annual meeting

Recommendation seconded and carried

**DR WENDE** Your Committee recommends that the Delegates approve of the levy of a per capita charge of \$200 on each member for 1921, and that each constituent County Society shall pay to the Treasurer the

amount of the charge for this fund on or before December 31, 1921

It was moved and seconded that the report be adopted

DR WENDE Dr Bogart dissenting recommends as a minority report that the per capita tax of two dollars for 1921 be not adopted by the House of Delegates

Dr Shehey moved to amend that the minority report be accepted Seconded

THE VICE SPEAKER We will vote on the amendment All those in favor of the amendment—and that means that we do not collect two dollars extra for special per capita charge—vote aye all those opposed no Lost

Now we will vote upon the original motion and that means that a per capita charge of \$2.00 be levied on every member for the year 1921 All those in favor say aye contrary no Carried

DR WENDE Your Committee recommends that the Delegates approve of referring to the Council in conjunction with the legal counsel the Constitution and By Laws for revision provided that the proposed revision be published twice in the official journal before it is presented to the Delegates of the Society, at a subsequent annual meeting of the House of Delegates

Seconded and carried

DR WENDE Your Committee recommends that the members of the House of Delegates endorse the efforts of the American Society for the Control of Cancer and earnestly bespeak the co operation of Branch District Societies and County Societies in this State with the efforts of Dr John M Swan of Rochester a member of this Society in his endeavor to disseminate useful facts concerning this disease to the laity and to interest more physicians in the exercise of their responsibility in this campaign

Seconded and carried

DR WENDE Your Committee recommends that the resolution of the House of Delegates of the Ohio Medical Association asking that the right to practice medicine in our state be extended to include the right to practice in all states be disapproved but your committee approves that part of the resolution which asks that the American Medical Association be urged to perfect a plan to facilitate the extension of interstate practice without the lowering of medical standards now existing in New York State

Seconded and carried

DR WENDE Your Committee recommends the adoption of the amendment of the Constitution Article 1 Section 2 whereby it shall read The State Annual per capita assessment shall be five dollars and shall be collected by the county treasurers at the same time and as part of the county dues and shall be remitted to the State Treasurer by the treasurer of each county society on or before the first day of June of each year

Seconded and carried

THE VICE SPEAKER Are there any further committees to report before we adjourn?

THE SECRETARY I move we adjourn until eight o'clock Seconded and carried

The meeting thereupon adjourned to 8 o'clock P M

#### EVENING SESSION

The House of Delegates reconvened at 8 P M and was called to order by the Speaker Dr E. Eliot Harris

THE SPEAKER Are there any resolutions to be offered?

DR DOUGHERTY To amend the Constitution Article 4 by striking out the words 'each county society shall be entitled to elect to the House of Delegates as many delegates as there shall be State Assembly districts in that county at the time of election except that each county society shall be entitled to elect at least one delegate and except that whenever at the time of elec-

tion the membership of a county society shall include members from an adjoining county or counties in which there shall be no county society in affiliation with this society, such county society shall be entitled to elect, from among such members as many additional delegates as there are assembly districts in the county or counties so represented in its membership'

And inserting the words 'The delegates shall be apportioned among the constituent societies in proportion to their actual active membership except that each constituent society shall be entitled to elect at least one delegate The House of Delegates may from time to time fix the ratio of apportionment'

THE SPEAKER The amendment to the Constitution has been received and will be filed with the Secretary to be considered at the next annual meeting

Are there any other resolutions?

DR HEALEY Presented the following resolution

WHEREAS The bills introduced in the present session of Congress by Senator Jones of Washington (S 206) and Representative Miller of Washington (H R 2193) contain a clause reading as follows

And the importation of opium or cocaine or any salt derivative or preparation of opium or cocaine hereafter is hereby declared to be unlawful provided that such amounts of crude opium and coca leaves or other crude narcotics as may be found necessary by the Secretary of State the Secretary of the Treasury and the Secretary of Commerce to provide for medical and legitimate uses may be imported under rules and regulations to be prescribed by the Secretary of State the Secretary of the Treasury and the Secretary of Commerce; and

WHEREAS, The effect of the enactment of said bills would be to enhance the price of cocaine and the opiate drugs and possibly to make them difficult to obtain in case of emergency or epidemic requiring the use of larger quantities than usual, and

WHEREAS The vigorous and adequate enforcement of the Harrison Narcotic Law would automatically limit the imports of these drugs to the amount that could be legitimately used while an arbitrary limitation such as these bills provide would increase the illicit traffic through smuggling and

WHEREAS There is no present need for a limitation of imports, and no present data for determining the amount required for medical and legitimate uses

Resolved That the Medical Society of the State of New York opposes the passage of these bills unless the clause quoted above be stricken from them And further

Resolved That a copy of this resolution be forwarded to Senators Calder and Wadsworth and to the Chairman of the Ways and Means Committee of the House of Representatives that it be printed in the JOURNAL and that the delegates from this state to the annual meeting of the American Medical Association be instructed to introduce and vote for a similar resolution at such meeting

Seconded and referred to the Reference Committee on Miscellaneous Business

DR DWIGHT H MURRAY I desire to present the following resolution

Resolved That the minutes shall be published after they have been approved by the Speaker and Secretary

Seconded and referred to the Reference Committee on Miscellaneous Business

THE SPEAKER Is the Reference Committee on Reports of Officers ready to report? Dr Coville Chairman

DR COVILLE We approve and commend the recommendation of the President on the adoption of a five dollar dues per annum

DR DOUGHERTY Made the point of order that this matter had already been reported on by the Reference Committee on Miscellaneous Business and adopted

THE SPEAKER Point of order sustained

DR COVILLE We approve the inauguration of talks in one hundred pulpits in this city on Sunday, upon Preventive Medicine and Problems of Health, and recommend it for future years. Seconded and carried.

DR COVILLE We commend the efficient work of our President—in the Society, at the meetings of its District Branches, and in the Council, it cannot pass without our special commendation.

Seconded and carried

DR COVILLE We recommend that a special per capita charge of two dollars be levied for the year 1921.

THE SPEAKER The House has already approved of a similar recommendation.

DR COVILLE Some provision should be made for a permanent clerk for the Chairman of the Legislative Committee during the session of the legislature.

Referred to the Council

DR COVILLE The Committee heartily approves the management of the JOURNAL during the past year, and, if the finances of the Society warrant, recommend that it be enlarged.

Referred to the Council

DR COVILLE The Committee commends and approves the work of the Secretary during the past year.

Seconded and carried

DR COVILLE We approve the report of the Treasurer as presented.

Seconded and carried

DR COVILLE We approve the report of the Council.

Seconded

DR DELPHEY I raise the point that that conflicts with the By-Laws, page 16, section 4, in which it refers to one committee which shall be under the direction of the House of Delegates, and the point is that you cannot change that by resolution, and I ask whether or not it is necessary to present it as an amendment, and have it lay over for one year.

It was suggested that Mr Whiteside, the legal counsel, be called upon.

MR WHITESIDE It was to preserve, as I understand, the powers of this body which has direct supervision over the work of the standing committees, that this resolution was drawn. A Council could have after the adjournment of this body no authority over any standing committee, no matter what the emergency might be, unless there was delegated by this body authority to the Council to act, so that in the absence of the delegation of such authority there would be no one that would have any supervisory power over any of the standing committees of the society, unless some resolution were passed by this body delegating such authority to the executive department of the society.

Under section 4, to which reference has been made, the House of Delegates is given power. Under the direction of the "House of Delegates, the committee on legislation shall represent the society in procuring the enforcement of the medical laws of the state, in the interest of public health and of scientific medicine, and in procuring the enactment of such medical laws as will best secure and promote the welfare of the whole people."

What will best secure and promote the welfare of the whole people is very difficult to determine while this House is in session during the early part of May, particularly when the legislative session starts the following January.

Therefore, it was thought advisable that there should be some method by which the authority vested in this House should be delegated to some representative constitutional body during that interim. The resolution has been drawn whereby the Council as the executive body should be given that authority while this House is not in session.

It is my judgment, Mr Speaker, and Gentlemen, that the delegation of that authority in the absence of the meeting of this House is entirely consistent with

the constitution, and in fact, in accordance and harmony with its provisions. Whether that is the proper policy for this society to pursue is a question, of course, for you gentlemen to determine. The question of law is one upon which I was called to give my best judgment, and that is my best judgment.

DR DELPHEY The question is whether a blanket delegation of power can be given to the Council, or must it be specified in each individual case? In other words, if the Committee on Legislation have approved or disapproved of something, must the House of Delegates give specific delegation to the Council to pass upon it, or can it give a general delegation and let them do what they please?

MR WHITESIDE Of course, the question is purely a moot question unless it is directed solely to the question before the house. I interpret the question, of course, as bearing only upon the question now before the house. The Council is the executive body of the society, and it represents particular branches of the state in the society while this body is not in session. It is presumed, therefore, to be the body that has the power to express the congregated judgment of the profession throughout the state, and is, therefore, the body to which any standing committee should look, at least, for advice and counsel during such time. It has the authority, if such a resolution as this be passed, to give such counsel and advice, whether it be on a specific question, or upon a general policy, in my judgment. Does that answer the question?

DR DELPHEY No, sir. It is not whether or not the Council may give advice, but it is whether they shall have direction.

MR WHITESIDE I think I see the point, Mr Speaker, and if I address myself to it may I give an illustration?

Underlying this resolution, it is a fact that in distant parts of the state there have been divergent views with respect to pending legislation. The chairman of the legislative committee would have to be possessed of omniscient power to represent discordant views and to harmonize them in his appearance before the legislative committees, and before the Executive.

Now, then, in order that those discordant views may be harmonized, that they may not be the subject of expression in a public way, leading to a public opinion of disunion among the medical profession, it was thought wise that there be provided a means by which the chairman of the standing committee could receive the congregated judgment of the profession throughout the state, and that then would rest upon him the responsibility as to whether or not he accepted the views so expressed, and during this interval he would at least have the benefit of the views so expressed through the Council, and it would rest entirely with him as to whether or not those views were such as expressed the congregated views of the profession.

Mr Speaker, it is my judgment that the power which is sought to be conveyed to the council under these circumstances can be so conveyed. There is no constitutional limitation.

DR DELPHEY I move an amendment, that the resolution reading as follows be expunged, "Therefore, be it resolved that all standing and special committees of the society shall be under the direction and subject to the orders of the council while the House of Delegates shall not be in session."

Seconded

THE SPEAKER All those in favor of the amendment as stated by Dr Delphey, will please signify by saying aye, those opposed, say no. The chair is in doubt. All those in favor please rise. All those opposed to the amendment of Dr Delphey, please rise.

The Speaker is convinced that the amendment is carried.

DR DELPHEY I move the adoption of the rest of the report of the Council. Seconded and carried.

DR COVILLE In regard to the appointment of the committee to consider the appointment of an executive

secretary, we recommend the employment of an executive secretary when a qualified man can be found and when the finances of the society permit

Seconded and carried

DR. SONDERN I move that the thanks of the House of Delegates be extended to the Reference Committee

Seconded and carried

THE SPEAKER Is the Reference Committee on Legal Counsel ready to report?

DR. SONDERN The report of the Legal Counsel is in the opinion of your Reference Committee one of the most important things that you have to consider at this session and I beg if you please, your earnest attention to it. It is a long report. You have read some of it in printed form. The rest was read to you this afternoon by the Legal Counsel. Your committee has seriously considered it. It would take altogether too much time and exhaust your patience to hear in detail its entire consideration. We have framed it in a few words to which I beg your attention.

In brief, The Legal Counsel proposed in his report to continue malpractice defense as heretofore and in addition to provide indemnity for the payment of judgments to those who want it at less cost than they can get it otherwise.

Malpractice defense is one of the most important functions of the State Society. The Legal Counsel's report shows the rapidly mounting cost of this work and in a few years this cost will be prohibitive. In consequence it seems imperative to consider the proposed plan. Please give your attention to the following:

Defense by the Society but judgments to be paid by the insurance company.

If the individual member does not wish insurance he has malpractice defense as of old.

No case is settled by the insurance company without the consent of the assured and of the legal counsel of the Society.

Defense for the insured and uninsured members is in the hands of the legal counsel of the Society.

Insured members are defended by the Society's legal counsel without expense to the Society but with all the benefits accruing to the uninsured members.

Reduced cost of malpractice defense to the Society as against a mounting cost otherwise.

I will read the following resolution.

WHEREAS It is desirable to continue the benefits to our members of the Malpractice Defense work, to prevent the profession from being subject to unjust attacks and

WHEREAS Through the defense plan of the Medical Society of the State of New York the members have had the co-operation of their fellow members and the defense of legal counsel of the Society in the protection of their reputations and interests against unjust attack and

WHEREAS A large number of members of the Society desire in addition to the protection afforded by the Malpractice Defense indemnity against judgments or claims for which they may be answerable in law despite the use on their part of their best skill care and judgment, and

WHEREAS Such an indemnity feature can be added to the benefits of the Malpractice Defense work of the State Society through arrangement with a representative insurance company at a reasonable rate and under conditions which will make available to the State Society's malpractice defense many elements of strength in the organization of the said insurance company particularly in the investigation of claims and preparation of cases, and

WHEREAS The members who procure such indemnity will not thereby lose any of their rights of participation in the malpractice defense of the Society but will receive all of the benefits therein as such member as well as the benefits of indemnity and

WHEREAS The operation of this plan will afford increased protection to the members and decreased cost to the Society for the maintenance of its Malpractice Defense department

THEREFORE, BE IT RESOLVED, That the Medical Society of the State of New York through its House of Delegates now assembled, upon the recommendation of the legal counsel of the said Society hereby endorses said plan and approves of the same and authorizes the Council, officers, Legal Counsel of the Society and the County Medical Societies to take such action with respect thereto as shall be fit and proper to carry the same into effect provided that nothing herein contained shall require any member of this Society to release his right now existing to participate in the benefits of the malpractice defense or compel him to subscribe to malpractice defense insurance except as he shall so elect.

I wish to add one concluding statement and that is if a man wishes malpractice defense indemnity in addition to malpractice defense by the counsel of the State Society there is only one way to get it and that is to become a member of the State Society. By becoming a member of the State Society a physician secures for eighteen dollars a year what would cost him forty five dollars to secure if he were not a member of the State Society. I move the adoption of this resolution.

Seconded and carried unanimously.

DR. WIGHTMAN I move a vote of thanks to the Legal Counsel and the Committee.

Seconded and carried.

THE SPEAKER We have a Reference Committee on Reports of Committees. Dr. Stockton is chairman of that committee.

DR. STOCKTON The Special Committee to which was referred the report of the Standing Committee, beg to report as follows:

Report of the Committee on Scientific Work. We recommend that the report as printed be accepted.

Seconded and carried.

Report of the Committee on Medical Research. We recommend that the report as printed be accepted.

Seconded and carried.

Report of Committee on Medical Economics. We recommend that the report as printed be accepted except the reference to the Medical Practice Act which died in the last Legislature.

Seconded and carried.

Report of Committee on Public Health and Medical Education. We recommend that the report as printed be accepted except that the actions of the Executive Committee of the Council must be approved by the Council as a whole and we further approve of the action as to limiting the importation of cocaine and morphine and other narcotic drugs as suggested by Dr. Healey.

Seconded and carried.

Report of Committee on Arrangements. We recommend that the report as printed be accepted.

Seconded and carried.

Report of Committee on Publication. We recommend that the report as printed be accepted.

Seconded and carried.

DR. STOCKTON Report of the Committee on Legislation. We recommend that the report as printed be received and we further recommend that the recommendations of the committee be disposed of as follows:

First recommendation that a legislative Bureau be established permanently at Albany for the purpose set forth in the Report of the Committee for the year 1919 be not approved. I move the adoption of this recommendation. Seconded. Motion lost.

DR. ROONEY I move as a substitute that the first recommendation of the Legislative Committee that a bureau be established permanently in Albany for the purposes set forth in the report of this committee for



the year 1919, be adopted Inasmuch as this motion involves an expenditure of funds, I move that it be referred to the Council

Seconded and carried

DR STOCKTON Second recommendation, that action be taken by the House of Delegates upon the perversion of the statute by the legislature in not re-appropriating moneys received from the profession to the Department of Education for the purpose of administering the law Your committee recommends the adoption of this recommendation

Seconded and carried

DR STOCKTON Your committee recommends the adoption of the third recommendation of the Committee on Legislation Seconded

DR Coville moved that it be referred to the Committee on Public Health and Education Seconded

THE SPEAKER Now the question is on the amendment to the original motion, that it shall be sent to the Committee on Public Health and Education All those in favor say aye, opposed, no Carried

DR ROONEY I move, Mr Speaker, that the Committee on Legislation be added to the Committee on Public Health and Education for the purpose of the consideration of this recommendation Seconded and carried The motion as amended, seconded and carried

DR STOCKTON Recommendation number four, That a committee be appointed by the House of Delegates to devise a plan for conducting public health education by county societies for the purpose of creating a public demand for proper health law and its enforcement Your committee recommends the adoption of the recommendation Seconded

DR WINTER I move that this be referred to the Committee on Medical Economics, acting with the committee on legislation Motion seconded

DR ROONEY It does not concern medical economics at all It concerns medical education, and I would, therefore, move to substitute the Committee on Public Health and Education for the Committee on Medical Economics

DR WINTER I will accept the amendment

Motion as amended seconded and carried

DR STOCKTON Recommendation number five, That a committee be appointed by the House of Delegates for the purpose of prosecuting a real state-wide investigation—not the closed chamber five-hour stereotyped dictated sort—on the subject of narcotic addiction disease, and that their report embody suggested changes in the present law both federal and state that they deem necessary for (a) proper medical care, and (b) police regulation Furthermore, that this committee meet with such other bodies, magisterial, charitable, health and educational, in the hope that this most important question may be clarified, and, if possible, a unanimity of opinion arrived at which will have imperative effect upon legislatures, both National and State Your committee moves the adoption of this recommendation

Seconded and carried

DR STOCKTON Recommendation number six, That the House of Delegates determine whether at legislative hearings the presentation of the argument for the Society shall be made by and at the direction of the Chairman of your Committee on Legislation or whether any County Society may, irrespective of the opinion of your chairman, present its view in opposition thereto

The committee would make this recommendation as an amendment to the recommendation of the Committee on Legislation, and as amended would recommend its adoption

Seconded and lost

DR ROONEY I move that the House of Delegates adopt the sixth division of the recommendations of the Committee on Legislation, as follows

That the House of Delegates determine whether at legislative hearings the presentation of the argument

for the Society shall be made by and at the direction of the Chairman of your Committee on Legislation or whether any County Society may, irrespective of the opinion of your Chairman, present its view in opposition thereto

Motion seconded

DR ROONEY moved that the recommendation of the Committee on Legislation be amended to read "Irrespective of the opinion of your committee," instead of "of your chairman"

DR DELPHEY I think this can be arranged by adding after the word, "thereto," "provided that his opinion is based upon the opinions of the majority of the County Societies" I move that as an amendment

Motion seconded

DR ROONEY I accept the amendment as offered by Dr Delphey

THE SPEAKER The motion of adopting section 6 of the report of the Chairman of the Committee on Legislation, as modified by the amendment of Dr Delphey, accepted by the Chairman of the Committee, is now before you

After discussion Dr Delphey moved the previous question Seconded and carried

THE SPEAKER Are you ready for the question? That is, on Section 6 of Dr Rooney's report, as Chairman of the Committee on Legislation, as modified by Dr Delphey and accepted by Dr Rooney

The recommendation as modified and amended was read by the stenographer at the request of the Speaker as follows

That the House of Delegates determine whether at legislative hearings the presentation of the argument for the Society shall be made by and at the direction of the Chairman of your Committee on Legislation, or whether any county society may, irrespective of the opinion of your committee, present its view in opposition thereto, provided that his opinion is based upon the opinions of the majority of the county societies

DR ROONEY I feel that I cannot accept the amendment

DR WINTER Is not this whole matter covered already in the by-laws, under the duty of the committee on legislation, and are we not trying to amend the article of the by-laws, chapter 7, section 4? The point I wish to raise is that the duties of the chairmen of these various committees are set forth in the by-laws, and any addition to or subtraction from his duties is really in fact an amendment of the by-laws

DR ROONEY I wish to ask the Speaker to rule whether Dr Winter is speaking on resolution number 6?

THE SPEAKER He is making a point of order that this motion is out of order I am going to leave it to the house to decide in voting on the question

DR MABBOTT In voting upon this proposition 6, are we deciding the question, or merely deciding that the House will decide the question at some other time?

THE SPEAKER You are now voting upon the question of the original article 6, modified by the amendment of Dr Delphey, and a previous question has been moved on that, and you have got to vote now All those in favor of it, say aye All opposed, say no It is lost

DR ROONEY I think it is within the knowledge of this House that I arose and stated that I could not accept that amendment because it did not make sense, and the Speaker put the question to me directly, but that was after the previous question had been moved I move to reconsider it

Motion seconded and carried

DR ROONEY I move the adoption of the sixth recommendation of the Committee on Legislation

THE SPEAKER Let us consider Dr Delphey's amendment first Do you withdraw your amendment?

DR DELPHEY I withdraw the amendment

THE SPEAKER If there is no objection I will declare the amendment of Dr Delphey withdrawn There being none, it is so ordered

THE SPEAKER Now, Dr Rooney, your motion  
DR ROONEY That the sixth recommendation of the  
Committee on Legislation be adopted

Motion seconded  
DR MURRAY Section 6 now reads 'Committee' in  
stead of Chairman does it not?

THE SPEAKER It does All those in favor of adopt-  
ing recommendation number 6, as modified by changing  
the word Chairman to Committee will signify by  
saying aye opposed no Carried

DR STOCKTON As to recommendation number 7  
that the use of personal influence to in any way defeat  
the legislative program of this Society subjects any  
member so offending to censure by the Society your  
committee recommends that it be not approved

Seconded and carried  
It was moved that the thanks of the House of Dele-  
gates be extended to the Committee on Reports of  
Standing Committees for their work done in connec-  
tion therewith Seconded and carried

DR WENDE The Committee on Miscellaneous Busi-  
ness recommends that the House of Delegates disap-  
prove the resolution that the minutes shall be published  
after they have been approved by the speaker and  
secretary

Seconded and carried  
DR FRONCZAK offered the following resolution

WHEREAS Madame Marie Sklodowska Curie the dis-  
coverer of Polonium and Radium will arrive in this  
country on or about May 11 and

WHEREAS She will be honored by the women of  
America and by the American nation itself when a  
gram of Radium will be offered to her through the  
President of the United States on or about May 20th  
that she might make further studies upon the activities  
of this wonderful element and

WHEREAS radium plays so important a role in the  
practice of modern medicine it be therefore

Resolved, That the Medical Society of the State of  
New York in some manner as befits the occasion ex-  
tend the greetings of the Society to Madame Sklod-  
owska Curie

Referred to the Committee on Miscellaneous Busi-  
ness

DR DOUGHERTY Inasmuch as we have adopted num-  
ber 6 of the Legislative Committee's report I move that  
the Legal Counsel of the Society be requested to draw  
up a regulation involving this question and deciding it  
and report to the House to morrow

Seconded and carried

Upon motion duly made and seconded, the meeting  
adjourned to ten o'clock the following morning

#### ADJOURNED MEETING OF THE HOUSE OF DELEGATES

The House of Delegates met at 10 o'clock A M May  
3 1921 and was called to order by the Speaker

THE SPEAKER The first order of business is the roll  
call

The Secretary called the roll and the following dele-  
gates responded

Howard E Lomax Edgar C VanderVeer Eugene  
C Hinman Frank H VanOrsdale, Joseph B Cohen  
Joseph H Gettinger Robert Goldberg Jacob A Keller  
Paul Luttinger Samuel Rosenzweig Norman  
Nathan B Van Fthen Harry I Johnston Lester H  
Quickenbush J L K Morris Harry S Bull Melville  
S Cove LaRue Colegrove George DeB Johnson  
James Walsh John A Card James E Sadlier Carl G  
Frost Francis E Fronczak F Park Lewis Albert T  
Lytle Charles G Stockton Grover W Wendt Syl-  
vester C Clemans Dean W Jennings Harry H Halli-  
well James F McCaw Calvin F Barber Robert F  
Barber Elms H Bartley Alfred Bell Arthur H Bog-  
art J Bion Bogart William F Campbell Robert E  
Coughlin Roger Duthum Edwin H Fiske James W  
Fleming Russell S Fowler Edwin A Griffin O Paul  
Humpstone Frank D Jennings William Linder Walter  
L Ludlum Sylvester J McNamara Ralph H Pom-

eroy Charles C Scofield John J Sheehy, Walter A  
Sherwood James McJ Winfield Paul H von Zierol  
shofen William T Shanahan Nelson O Brooks James  
P Brady Clarence V Costello B J Duffy, Floyd S  
Winslow George A Newton Theodore H Allen,  
George Barrie Edward M Cole, Jr, Eden V Delpey,  
Daniel S Dougherty, Ten Eyck Elmendorf Gustav G  
Fisch Lewis F Russell W P Healey Ward B Hoag,  
Samuel J Kopetzky George W Kosmak, J Milton  
Mabbott Howard G Myers, Charles H Peck Wen-  
dell C Phillips Eugene H Pool Alfred C Prentice,  
Abraham J Rongy Howard C Taylor, Frederick T  
van Beuren, Jr George Gray Ward Jr, Orrin S  
Wightman Robert P Reagan Frederick Leighton  
George M Fisher Howard J Teller, Thomas Farrell,  
H Burton Doust William L Wallace, John H Pratt  
Burke C Hamilton, William H Snyder, Ralph E  
Brodie Walter H Kidder Julian C Smith Thomas C  
Chalmers Henry C Courten Martin M Kittell L  
Howard Moss Ernest E Smith, Christopher J Pat-  
terson Burton S Booth E Warren Presley George  
A Leitner W Grant Cooper Henry G Hughes Fred-  
erick C Reed Herbert L Odell Albert W Ferris  
Robert M Elliott Clarence C Miles Frank Overton  
Luther C Payne George M Cady Luzerne Coville  
Frank L Eastman Morris Maslon Arthur S Corwin  
Edwin G Ramsdell Floyd O Reed Henry W Titus  
Chauncey V Umsted

The following officers and chairman of standing com-  
mittee were present

J Richard Kevin, C Eliot Harris Dwight H Mur-  
ray W Meddaugh Dunning, William H Purdy Ed-  
ward Livingston Hunt Joseph B Hulett Luther Em-  
erick T Avery Rogers Leon M Kysor Owen E  
Jones, Harry R Trick Samuel Lloyd James F  
Rooney Henry Lyle Winter Joshua M Van Cott  
Frederic E Sondern William Francis Campbell

THE SPEAKER declared that the House of Delegates  
is now in executive session and the delegates only  
should occupy the designated seats

DR DOUGHERTY moved that the Legal Counsel be  
permitted to retain his seat among the delegates

Seconded and carried

THE SPEAKER The next order of business is nomina-  
tions for President

Dr Charles G Stockton nominated Dr Allen Arthur  
Jones of Buffalo

Dr Frank L Eastman of Kingston nominated by  
Dr James I Rooney of Albany

It was moved and seconded that the nominations be  
closed Carried

The Speaker appointed as tellers Dr Jennings Dr  
Kosmak Dr McCaw and Dr Brooks

The tellers reported that one hundred and six votes  
were cast of which Dr Rooney received sixty four and  
Dr Jones forty two

The Speaker declared Dr Rooney duly elected Presi-  
dent of the Society for the coming year

The following officers were nominated and declared  
duly elected

Speaker Dr C Eliot Harris New York City  
Vice Speaker Dr Dwight H Murray, Syracuse

First Vice President Dr W Meddaugh Dunning,  
New York City

Second Vice President Dr William H Purdy Mt  
Vernon

Third Vice President Dr William D Johnson  
Bartow

Secretary Dr Edward Livingston Hunt New York  
City

Assistant Secretary Dr Wilbur Ward New York  
City

Treasurer Dr Seth M Milliken New York City  
Assistant Treasurer Dr Charles Gordon Heyd New  
York City

Chairman of Committee on Scientific Work Dr Sam-  
uel Lloyd

Chairman of Committee on Public Health and Medical Education, Dr Joshua M Van Cott

Chairman of Committee on Legislation, Dr James N VanderVeer

Chairman of Committee on Medical Economics, Dr Henry Lyle Winter

Chairman of Committee on Medical Research, Dr Frederic E Sondern

Chairman of Committee on Arrangements, referred to the Council for appointment

Committee on Prize Essays, Dr Albert VanderVeer, Dr Edward D Fisher, Dr Charles G Stockton

The following delegates were duly elected to the American Medical Association, for two years

Dr James F Rooney, Dr Frederic E Sondern, Dr William F Campbell, Dr Grover W Wende, Dr Thomas H Halsted For one year, Dr Thomas C Chalmers Alternate delegates for two years, Dr Henry Lyle Winter, Dr Russell S Fowler, Dr Edwin MacD Stanton, Dr Joseph B Hulett, Dr James E Sadlier

THE SPEAKER We will hear the report of the Committee on Prize Essays

The Secretary read the following report of the Committee on Prize Essays

The Committee on Prize Essays would report that no essays have been received for either the Merritt H Cash or Lucien Howe Prizes It is remarkable how little attention is given to the subject of prize essays

Two years ago the Medical Society of the State of New Jersey offered a prize of \$1,000 for an essay on some medical subject and not one was received

We note in our journals and magazines that, at times, a much smaller prize receives very prompt attention, but, for some reason, our medical subjects do not command that attention they would seem to deserve

THE SPEAKER Now has any of the committees anything to report?

DR JAMES F ROONEY, speaking for the Committee on Legislation, stated that there were four bills relating to the medical profession now awaiting the signature of the Governor, and stated that his personal belief was that the Governor would withhold his signature from these bills until he had some expression of opinion from the Medical Society of this State, that these bill all related to the narcotic drug question in the State of New York, that two of them were Fearon-Smith bills, one of which classifies narcotic drug addiction among communicable diseases, giving health officers power under the police power of the Sanitary Code to commit drug addicts just as they would any case of small pox, diphtheria, or other contagious and communicable disease

Another is the Lord bill providing for the repeal of the statute creating a department of narcotic drug control, and a second Lord bill, re-enacting the entire Whitney law without making any provision for narcotic control commission, but the rules and regulations having the force of statutes

After a free discussion Dr Dougherty moved that the whole matter be referred to the Council

Dr Rooney stated that it was possible that the Governor would not await the action of the Council and thought the House should decide the question definitely

Dr Dougherty amended his motion to read that all that portion of this matter except the wiping out of the narcotic drug department be referred to the Council

Seconded

Dr Rooney read the so-called Lord bill in question, being Senate Bill 1626, and moved that the House of Delegates recommend the signature of the Governor of the so-called first Lord bill, which abolishes the Narcotic Drug Commission of the State of New York

Second and carried

Dr Rooney moved that the Fearon-Smith bills and the second Lord bill be referred to the Council for consideration and proper action

Seconded and carried

DR WENDE Your Committee on Miscellaneous Business recommends that the President appoint a committee of three to draft a series of resolutions appreciative of the work of Madame Curie in the discovery of radium and development of its uses, and that said resolutions be engrossed and presented to her by the President

Seconded and carried

DR WENDE Your Committee disapproves of the amendment as proposed to the By-Laws, Chapter VII Section 2, to make the Committee on Prize Essays a Standing Committee, and urges the Delegates to defeat its proposed adoption

Seconded and carried

DR WENDE Your Committee recommends that an attempt be made by all members of this Society to secure through influence with their representatives in Senate and Assembly, an amendment of the present State Law which dictates to us that previous notice must pass the House of Delegates before a change can be made in the time and place of our annual meetings thus preventing the Council from arranging these matters, as may and has been occasionally necessary

Seconded and carried

DR DOUGHERTY There is a reference to Mr White side That was as to No 6 on Dr Rooney's report

MR. WHITESIDE It is the sense of the House of Delegates that the Society shall be represented before the legislature, the committees thereof, and the executive on matters of medical legislation by the Legislative Committee acting through the Chairman, and that an County Society that may desire to present its views on any such hearing may do so through its duly constituted officers or committees, provided, however, that in so doing the rights and privileges of the Legislative Committee of the Society shall not be infringed

Should conflict arise hereunder the Council shall use its efforts promptly to settle the same with due regard to the respective rights of those concerned

It was moved and seconded that the recommendation of the legal Counsel of the Society be adopted

Seconded and carried

It was moved that the time and place of meeting be referred to the Council, with power to act

Seconded and carried

Dr Eastman moved that the Society express its appreciation for the time, trouble and pains taken by the Brooklyn members for the entertainment of the Society this year

Seconded and carried unanimously

DR FERRIS I wish to offer the following resolution  
Resolved, That a resolution of this House of Delegates, signed by the Secretary of the Medical Society of the State of New York, be sent forthwith to the Hon James W Wadsworth and to the Hon William M Calder, United States Senators from New York urging them to secure an amendment of the Volstead Act, whereby shall be permitted the manufacture of beer, ale, porter and stout, and also wine containing not over seven per cent of alcohol, as earnestly desired by a great number of physicians in this State

I move its adoption

Motion seconded and lost

DR DOUGHERTY I move that this House of Delegates congratulate the Committee on Arrangements, particularly those that had charge of that magnificent display across the way I do not think that any of us have ever seen anything to equal it, and that committee should be congratulated for the work that they have done

Motion seconded and carried unanimously

Upon motion duly made and seconded, the House of Delegates adjourned at 1 P M

EDWARD LIVINGSTON HUNT,  
Secretary

# New York State Journal of Medicine

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street New York N Y

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## CHAIRMEN STANDING COMMITTEES

### Arrangements

FREDERIC C CONWAY M D Albany  
Public Health and Medical Education  
Joshua M Van Cott M D Brooklyn

### Medical Research

Frederic E Sonderm M D New York

### Scientific Work

Samuel Lloyd M D New York

### Medical Economics

Henry Lyle Winter M D Cornwall

### Legislation

James N Vander Veer M D Albany

## COUNCIL

The above officers (with the exception of the Assistant Secretary and Assistant Treasurer) the Ex President and the Councilors of the District Branches

First District—George A Leitner Piermont  
Second District—Arthur D Jacques Lynbrook  
Third District—Arthur J Bedell Albany  
Fourth District—Edwin MacD Stanton Schenectady  
Fifth District—William D Alsever M D Syracuse  
Sixth District—Leon M Kysor M D Hornell  
Seventh District—Owen E Jones M D Rochester  
Eighth District—Harry R Trick M D Buffalo

## COUNSEL

GEORGE W WHITESIDE Esq 27 William St New York

## SECTION OFFICERS

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### Pediatrics

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### Eye Ear Nose and Throat

Chairman HENRY L LYNNAH M D New York  
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### Public Health Hygiene and Sanitation

Chairman PAUL B BROOKS M D Albany  
Secretary ARTHUR D JACQUES M D Lynbrook

### Neurology and Psychiatry

Chairman MICHAEL OSNATO M D New York  
Secretary S PHILIP GOODHART M D New York

## MALPRACTICE DEFENSE

THE resolution recently adopted by the House of Delegates relative to indemnity insurance in connection with malpractice defense has had the careful attention of your Council. A circular letter containing the completed details of the plan has been prepared and sent to every member of the Society. The plan is now operative and this additional safeguard can be obtained at any time by following the instructions contained in the circular letter mentioned.

The increased number of technical procedures involved in the modern practice of medicine have notably increased the physician's hazard relative to supposed malpractice. This is clearly apparent not only in the increasing number of suits for malpractice but also in an analysis of the reasons why these suits are brought. While the legal counsel of the State Society is almost universally successful in protecting reputation and interest in these unjust attacks, still the amount claimed is usually large and the defeat of the claim is often a matter of months which almost invariably causes intense though unnecessary worry. The indemnity feature now proposed is the best possible antidote for this probably needless but generally existing mental state and the members of the State Society are urged to avail themselves of this additional protection. If there are any details which have not been made perfectly clear or if local representatives present the plan in any way different from that outlined by the officers of the Society, the legal counsel should be appealed to for explanation and correction.

## Deaths

BRYANT FRANK A New York City also White Plains  
Bellevue Medical College 1895 Fellow American Medical Association State Society Academy of Medicine Resident Physician Burke Foundation White Plains Died May 17 1921  
DINKELSPIEL EDGAR New York City University of California 1899 Fellow American Medical Association State Society Academy of Medicine Died May 25 1921  
LIEBHAN SAMUEL J New York City Cornell Medical College 1900 Member State Society Died June 5 1921  
SHEEHAN JAMES DENNIS VINCENT Syracuse Syracuse Medical College 1907 Fellow American Medical Association Member State Society Academy of Medicine Assistant Physician St Joseph's Hospital Died April 28 1921  
STILL DAVID VEDDER Johnstown Bellevue Medical College 1876 Fellow American Medical Association Member State Society Died May 31 1921  
SUITS PETER LANGRAVE Tribes Hill Albany Medical College 1879 Fellow American Medical Association Member State Society Died April 21 1921  
WATKINS FRANK L Buffalo Buffalo Medical College 1891 Member State Society Died May 13 1921  
WUNDERLICH FREDERICH WILLIAM Brooklyn St Louis 1864 Fellow American Medical Association Member State Society New York Academy of Medicine Brooklyn Pathological Brooklyn Surgical Surg on St Peter's Hospital Died May 16 1921

## County Societies

### MEDICAL SOCIETY OF THE COUNTY OF MONROE,

REGULAR MEETING, ROCHESTER, N Y,  
MONDAY, MAY 16, 1921

The meeting was called to order by the President, Dr George H Gage

The minutes of the last meeting and of the Comitia Minora were read and approved

The following new members were elected Drs C P Thomas, G H Welch, M Hoenig, W W Scharrer, J A Ames, G L Price, J H Leary, R V Lawrence, L L Burger, C S Nash, M Lazerson, H C Collins, A C Woggon, R B Crain, J C Graves, J B Deuel, H B Phillips, E J Avery, F Gordon, R M Eaton, J W Scott, M A King, G H Griffin, M O Houghton, C T Harris, G Long, E W O'Brien

Dr Charles W Hennington, Rochester, spoke briefly on the History of the Monroe County Medical Society, this meeting being the 100th Anniversary of the Society

The Secretary read a communication from the New York Society of Anesthetists urging the passage of a resolution endorsing a special section in the American Medical Association

Dr Owen E. Jones moved that the communication be laid on the table Seconded and carried

The Secretary read a communication from Dr Arthur M Johnson, in which he tendered his resignation from the Milk Commission

Dr Jones, moved that the resignation be accepted Seconded and carried

Dr McGill moved that Dr Henry Hall Covell be appointed to succeed Dr Johnson Seconded and carried

The Secretary read a letter of appreciation from Mrs Dow for the flowers sent her by the Society

The paper of the evening entitled "Modern Tendencies and the use of Drugs," was read by John D Hirschfelder, M.D., Minneapolis Discussed by Drs Angell, John R Williams, Culkin and Jameson

A rising vote of thanks was extended to Dr Hirschfelder

### MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN,

REGULAR MEETING, SARANAC LAKE, N Y,  
TUESDAY, MAY 10, 1921

The meeting was called to order and the Comitia Minora met in the Free Library Building at 1 30 P M and the regular routine business was transacted

The business session was called to order at 2 o'clock, with the following present members Drs White Packard, Abbott, Kinghorn, Wardner, Zimmerman, Randall, Van Dyke, Trudeau, Heise Trembley and A L Rust Visitors Drs George M Beilby of Albany, C S Coulten Malone, and George A Stock, U S Public Health Service

The minutes of the last meeting and of the Comitia Minora were read and approved

John J Randall M D, Banger, was elected to membership

The President appointed the following committee to nominate candidates to be elected at the next annual meeting—Drs Price, Harrigan and Trudeau

The Committee reported the following nominations for President, Edward N Packard, Saranac Lake, Vice-President, John D Harrigan, Malone, Secretary-Treasurer, George M Abbott Saranac Lake, Censor for three years George F Zimmerman, Malone, Delegate to the State Society Charles C Trembley Saranac Lake Alternate Alfred G Wilding, Malone

The President appointed a Committee of Drs Edward R Baldwin and N Packard to draft suitable resolutions on the death of Dr Robert M Brown Saranac Lake

A communication from Dr Charles F Wicker, Saranac Lake consisting of protests against alleged violations of medical ethics by certain members of the Medical Society, together with cards, affidavits and correspondence pertaining thereto, was presented and referred by the President to the Board of Censors for investigation

#### SCIENTIFIC SESSION

"Something about Goitres," George M Beilby, M D, Albany Discussion by Drs Kinghorn, Paterson and Trudeau

"On the Disappearance of the Tubercle," Edward N Packard, M D, Saranac Lake

Discussion by Drs Beilby, Kinghorn and Paterson

"The Determination of Bodily Temperature," Hugh McL Kinghorn, M D, Saranac Lake

The meeting adjourned at 4 30 P M

### MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON,

SEMI-ANNUAL MEETING, FORT EDWARD, N Y,  
TUESDAY, MAY 10, 1921

The meeting was called to order in the Community House at 11 A M The following present Members Drs Paris, Pashley, Banker, Wilde, Huntington, Heenan, Sumner, Byrnes, Davies, Plunkett, Budlong, Cuthbert, Park, Oatman, Hulsebosch, Stillman, Lee and W A Leonard Visitors Drs John L Rice, State Department of Health, F G Fielding, J W Dean, H J Hughes

The minutes of the Annual and Special meetings were read and approved

The Comitia Minora presented its report

Dr Leonard A Hulsebosch, M D, elected to membership

The Treasurer reported twenty-two members paid to date and \$152 64 on hand

The Vice-President, Dr Paris, gave a very interesting address describing the problems and difficulties that surround the general practitioner mentioning the restrictions of the narcotic laws, the prohibition laws, that the expense and length of time required to get a medical education prevented the young man of moderate means from becoming a physician The Doctor also stated that there was a call for more general practitioners and as they were rapidly becoming a thing of the past

Dr Fred G Fielding, gave an instructive talk on Focal Infections, illustrated by several cases

Dr Robert E Plunkett, reported a case of Tetanus successfully treated, with some results of the war findings in this disease

Dr John L Byrnes, gave his experience in Cardiac Diagnosis during the war

Dr John L Rice, spoke on the control of Diphtheria, mentioning the Schick Test the Vaccine, and Antitoxin

The Society voted to donate \$500 to the Community House

Drs Fielding and Rice were tendered a vote of thanks

### MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER

REGULAR MEETING, TROY, N Y,  
TUESDAY, MAY 10 1921

The meeting was called to order at 8 30 P M at the Marshall Sanitarium, and the following program was presented

"Mania Transitoria, or Migraine," Jesse M M  
M D Albany

"Presentation of Mental Cases" Christopher S.  
terson M D, Troy

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL. 21, No. 7

NEW YORK, N. Y.

JULY, 1921

## THE IMPORTANCE OF HISTORY-TAKING IN CHRONIC GASTRO-INTESTINAL DISEASE\*

BY WILLIAM GOLDIE M.D.  
TORONTO, CANADA

THE choice of a subject such as the history-taking of gastro intestinal disease may to this audience seem an impertinence, especially when such a choice is not supported by the presentation of new facts. It requires much courage to appear before you and present the obvious and it is only by reason of my strong conviction that we as clinicians neglect history analysis more than any other branch of our work, even though we know that more than 70 per cent of the points of evidence upon which a diagnosis is made arises out of the history, that I am driven to an attempt to stir up discussion by a purposely dogmatic if incomplete presentation of the subject.

There is an ever recurring necessity to review all the means at our disposal for arriving at a diagnosis.

The rapid accumulation of new facts, theories and tests makes it difficult to retain a sense of proportion and to guard against the ever-present tendency to lay hold upon some pathognomonic sign or to seek some short cut to a diagnosis. Of late there have been recorded a great number of facts by workers in all branches of the medical sciences. These have opened up new methods of approach and illuminated the stores of unapplied knowledge of the embryologist, making it possible to form a better conception of the activities and the correlations of the various portions of the gastro intestinal tract, and to build up new hypotheses to be tested by experience and experiment.

These facts and the new conceptions are slow to gain foothold in textbooks and I am sure that in the past all of you have experienced the mental daze that resulted from a search through the textbooks on gastro intestinal disease. A few well known types might stand out here and there recognizable but exasperating in their vagueness of symptomatology, the rest of the sections being so characterized by indefiniteness that it is not exaggeration to state that an interchange of the

titles would not have materially added to the confusion, nor would such a change have been easily detected.

It was this lack of definiteness that disheartened the enquirer and caused him to look askance at the gastro enterologist. Many have been the harsh sayings and criticisms aimed at him in the past, probably none more harsh than that of one of your confreres who in a discussion as to the studies which led to the greatest development of mind in the profession said "A highly trained neurologist presents the mind's development at its best then naming others in succession lapsed into a caustic strain—"and last after the surgeon comes the gastro enterologist." But surely that day is gone for a foundation has been laid by the embryologist, the physiologist, the radiologist and the surgeon upon which we can build.

In the past the fascinating study of secretion, digestion and absorption has been remarkably barren in providing explanations as to the immediate origin of symptoms. In fact it might in general be said that no alteration in secretion, digestion or absorption gives rise to the symptoms complained of by the majority of patients suffering from gastric disturbances. The new facts have given rise to the conception that the majority of such symptoms are dependent upon defects in the activity of the muscular elements of the tract. This conception has so far been in keeping with the clinical findings and its adoption has led to the sorting out of certain symptom complexes having a definite meaning and reasonably accounted for the activities and the interaction of the various portions of the tract and provided satisfactory explanations for the absence of certain symptoms where expected in such a pathological condition as gastro duodenal ulcer and for the presence of these symptoms when no ulcer exists.

The application of such a conception necessitates at least a working knowledge of how the muscles work, when they work when they relax and what are the common causes that alter the normal action and the time of relaxation, action and rest.

I have no intention of reviewing all the activities of the various divisions of the tract but for a special purpose shall touch upon a few.

The cardiac orifice of the stomach at the beginning of the meal is so firmly closed that a force

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4 1921.

equal to 26 cm of water is required to pass a bolus through it. With each successive bolus it relaxes until after six to twelve boluses have passed it is completely relaxed. With the passage of each bolus the stomach relaxes up to a normal point, at which the individual feels "filled" and "satisfied." Soon after the meal the cardia closes firmly and the stomach contracts upon its contents, raising the intra-gastric tension. This latter action with the aid of the peristaltic waves, gradually forces the contents through the pyloric opening. The various muscles of the stomach have different properties. All have tonus, all the power of prolonged contraction, but only the muscles of the media and the pyloric antrum have property of transmitting peristaltic waves and of being provoked to marked local spasm. The first portion of the duodenum also can be provoked to local spasm, but ordinarily relaxes to receive the oncoming food and contracts firmly as the delivery lessens.

The gall-bladder has its period of greatest muscular activity from fifteen minutes to one hour after the meal.

The ileo cæcal sphincter relaxes soon after the delivery from the stomach begins, and the cæcum relaxes periodically to receive the flow.

These statements are made to attract attention to the periodicity of relaxation, action and rest, and to recall to you how dependent each action is upon the delivery from the stomach.

It is reasonable to suppose that there should exist an intimate relationship between all parts, and that each and every part beyond the stomach should through nerve reflexes and chemical agents influence or disturb the muscular activities in that receiving, preparing and delivery chamber. This assumption is borne out by the findings of the physiologist, the radiologist and the surgeon by our clinical experience which leads us to the belief that over 90 per cent of patients complaining of gastric symptoms have no organic disease of the stomach and by the revelations of the embryologist as to the development and innervation of the tract with its relationship to the higher nervous centres and to the various segments or somites of the body.

How shall we apply our new knowledge and new conceptions to the taking of the history?

After noting the complaint and listening to the patient's story, from what point shall we develop our cross examination?

For the present let us deal with the daily cycle, though it might in many cases be wisest to deal with the "attacks of indigestion" first.

Each portion of the day must be closely searched with a clear idea of the normal state of the muscular elements of all parts in each of these periods. The day may be roughly divided into periods as follows:

#### 1 The period after awakening—

When the stomach and the ileum should be

empty and all parts at rest in a low state of tonus, but being gradually stimulated to increased tonic contraction and peristalsis.

#### 2 The period of the desire for and the reception of food

#### 3 The period of active delivery during which—

The stomach is in active tonic contraction and showing vigorous peristaltic waves, The pylorus is opening,

The first portion of the duodenum is relaxing,

The small intestine throughout is in active peristalsis with relaxation of the ileo cæcal sphincter and the cæcum,

The gall-bladder is actively in contraction.

#### 4 The period of lessening delivery during which—

The stomach is lightly contracted and showing few peristaltic waves.

The first portion of the duodenum is contracting actively and continuously.

The gall-bladder is relaxing.

The small intestine shows weaker and fewer waves and the sphincters are closing.

The cæcum is sharper in its periodic contraction.

#### 5 The period of rest and hunger

Then the periods of the recurring meal cycles.

(always keeping in mind that the enquiry into each must be thorough, as any defect in the passage of the content from the former meal will influence the subsequent cycle.)

#### 6 The period of night rest

Then the enquiry turns to—What provokes or exaggerates the symptoms? What checks or eases the discomforts? What is the influence of worry or nervous tension? After this, enquire into the frequency of bowel evacuation, the need for laxatives, the discomforts before, during and after, the sense of ease or satisfaction, the character of the stools, the presence of blood and the presence of mucus in the stools.

After eliciting all complaints and their relation to the daily cycle, one is able to determine whether the complaints have their origin in the defective action of the muscular elements from whatever cause, or whether they are due to some affection, such as irritation of the peritoneum or some mechanical defect.

Turning then to the history of the attacks, the enquiry may be roughly summarized by the following questions—

Have all the "attacks" been the same as the present one?

How long was the longest? and—How short was the shortest?

How long are the intervals between "attacks"?  
Are there any symptoms in the so called interval?

What provokes or exaggerates, eases or cuts short an "attack"?

Did any slight or severe illness precede the first "attack"?

No history is of much value which does not give a clear account of the "attacks."

The past history is then taken up seeking for evidence pointing to recurring infections, local inflammations and irritations.

To illustrate some of the points that arise let us first consider the period after waking —

A woman about twenty-eight years of age complains that on waking there is lower abdominal distress especially in the right lower quadrant, that she feels miserable, heavy "poisoned," that indifference to breakfast may amount to distaste for food or even nausea that the symptoms do not increase during the morning, that she takes lunch because she feels she should, not because of desire. Gradually during the afternoon the discomforts lessen she feels lighter and brighter, has a desire for food at the evening meal and can be active afterwards. This recurs day after day, laxatives occasionally relieve her the attacks last for days weeks or months they rarely occur in the summer or if she keeps active, interested and happy.

When such a case is investigated by adding barium to the evening meal it is found that in the morning the stomach is empty but that the ileum contains 40 to 60 per cent of the barium. Examined every half-an-hour after breakfast there is found to be an ebb and flow through the ileo-cecal sphincter until the ileum is finally free of barium two or three hours after the mid day meal.

This condition must be due to ineffective peristalsis of the ileum and the over action of the cecum in the endeavor to overcome obstruction beyond. This constitutes the picture of true ileo-cecal regurgitation.

This type must not be confused with the slight amount of regurgitation commonly found on the giving of a barium enema nor must it be confounded with ileal stasis due to adhesions and kinks of the ileum.

This latter condition produces an entirely different train of symptoms. The patient awakens without abdominal discomfort but late in the morning there is an increasing sense of unease heaviness etc. the mid-day meal is taken with indifference after this there is epigastric discomfort and frequently distress and unease in the lower right quadrant, with increasing sense of heaviness and dullness which continues until late evening. The "attacks" may last several days or weeks. The "attacks" may in the majority of cases be cut short or warded off by refraining from the mid day meal. In such cases of ileal stasis the ileum is found to be empty or

nearly so in the morning, but during the day obstruction or ineffective action of the ileum causes increasing accumulation. The distentions and the spasmodic activities of the ileum after the second and third meal give rise to the local discomforts and reflexly upset the orderly action of the stomach and the output of the duodenum by causing local spasm and over action.

The synopses of the foregoing cases illustrates the necessity of giving full consideration to the daily cycle as a whole.

The relationship of symptoms to a special period in the meal cycle is incidentally shown in the following synopses of two apparently similar cases, which are introduced for the purpose of illustrating the importance of a close study of the history of "attacks."

1 A woman about forty-six in the menopause, complains of epigastric distress and pain occurring two or three hours after meals—at times radiating through to the back. Very rarely has it disturbed her at night. The pain is eased rapidly and completely by the taking of food. The "attacks" have been very frequent for twenty years but have not occurred during the Summer time until this last year. The "attacks" varied in duration from two to seven days with or without treatment until the present one which has been continuous for four months. The intervals between attacks varied from a few days to six months. The patient believes that many of the attacks were provoked by worry. She sought aid five days after the onset of the present attack and has consulted many physicians.

The outstanding symptom is epigastric pain occurring in the period of lessening delivery and rest the pain ceases on the taking of food, then it must be due to spasm of the output of the duodenum.

The cause of the spasm could not be due to ulcer as the duration of attacks up to the last was too short.

The causative relation of worry and the disorders of the menopause account of the frequent attacks during the present Summer, the prolongation of the present attack, and the failure to get ease by the ordinary treatment, and is borne out by the physical findings.

The next synopses is at first sight almost identical.

2 A woman about thirty-nine complains of epigastric distress and pain occurring two or three hours after eating. Frequently she is awakened in the night by the pain. The pain is rapidly and completely eased by the taking of food. The "attacks" started nineteen years ago and have recurred frequently, have occurred in the Summer time but the severest attacks were in the Fall and early Spring. She stated that the "attacks" lasted three to eight days and responded to treatment immediately though she was "not herself" for some time. The intervals varied from a week or two to six months until



three and one-half years ago, since when she has been free of all symptoms until the present attack. The present "attack" and several others were preceded by sore throat. Worry neither provokes nor influences the attacks. The present "attack" started three weeks ago, but no treatment was taken or sought until now.

Like the former case, the pain must be due to spasm of the caput of the duodenum, but the cause of the spasm must be ulcer.

The diagnosis of ulcer might be refuted if it were not for —

1 The modified statement as to the length of the attacks,—the pain was readily relieved, but she was "not herself" for some weeks.

2 That time must impress her but little, as she only sought aid three weeks after the onset of the present attack.

3 A long interval of three and one-half years.

4 Worry had no influence.

5 The general appearance and physical findings supported such a diagnosis.

The history of attacks in cases where there is a single cause or lesion is as a rule easily obtained, except where we have to deal with chronic disease of the gall-bladder. Here great patience and perseverance is required of the cross-examiner for it is very difficult for the patient to give an orderly account of the extreme variations that exist in this affection as to the length of attacks, the length of intervals, and the severity of the symptoms. The attacks may last only a day or two, or they may be so prolonged or the intervals so short as to seem continuous, while the symptoms varying in intensity, frequently give the impression of distinct types.

When the symptoms and the attacks are varied by reason of complications or by more than one cause being active, the analysis becomes more and more difficult. A very careful inquiry must then be conducted with the object of obtaining a clear description of the earliest attacks and the evidence of any changes in the attacks or the symptoms.

In the search for the earliest "attack" we pass further and further back into the past history, and frequently have to seek for evidence in the childhood and the adolescence periods. The mode of cross-examination as to the disturbances in these periods must for obvious reasons be changed and take on the form of direct questions as to this or that disturbance whose presence would suggest prolonged or recurring infection, local inflammation, local scar, excessive or defective reaction, etc.

I cannot pass this by without protest against the notes as found in the usual history covering these periods. So often we are informed that the patient has had measles, whooping cough, chickenpox, scarlet fever, etc., which information in the present state of our knowledge of immunology is of little, or shall I say, of no value.

Why should we be interested in the mere occurrence of such diseases? The information we want will be found in the answers to the questions—Was there any real damage done? Was the recovery rapid? Was the patient well afterwards?

The questions should cover health in infancy, recoveries from acute infections, run-down periods, "out-growing of strength," growing pains, frequency of sore throats and bronchitis, recurring vomiting spells with or without headaches, recurring bilious attacks, sick headaches, pleurisy, anaemia, ability to "keep up with" other children, etc. Seeking for damage done, seeking for defects, seeking for prolonged or recurring general and local infections, etc. The more thorough these enquiries are carried out the more is one's interest aroused in the relationship between early damage and gastro-intestinal disorders in adult life.

A careful study of the history of childhood affections holds out great promises. As yet there are few definite conclusions, but the impression is widespread that many of the gastro-intestinal diseases have their origin in childhood. If that impression should be the accumulation of data prove to be founded on fact, a new field lies open. I will only offer one suggestive relationship, and that drawn from limited material.

Of 127 cases of chronic disease of the gall-bladder proved by operation, gall-stone colic, or by undoubted X-Ray shadows of gall-stones—

74 or 58 per cent gave a history of recurring bilious attacks in childhood and adolescence.

31 or 24.4 per cent gave a history of a definite attack of cholecystitis in young adult life.

22 or 17.3 per cent were unable to recall bilious attacks or recount any recognizable attack of cholecystitis later in life.

In contrast to this, 500 histories of all conditions other than chronic disease of the gall-bladder gave only 37 or 7.4 per cent in which bilious attacks occurred in childhood and adolescence.

## THE INTERPRETATION OF GASTRO-INTESTINAL SIGNS AND SYMPTOMS

By FREDERICK WHITNEY ROLPH, M.D.,  
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THE usual gastro-intestinal patient presents a medley of complaints, often without apparent relation either to one another or to a common cause. It is our failure to interpret these signs and symptoms which is doing much to keep gastro-enterology the inexact science that it is.

A full discussion of such a large subject is, of course, out of the question in a single article, so I have endeavored to bring together some

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4, 1921.

of the more striking phenomena of digestive derangements and to link them up with the causes by which they are produced

#### (1) Desire for Food

Physiologically hunger and appetite may be as the poles apart but for the present let us translate them as they exist in the patient's mind, by the phrase "desire for food." In the normal individual the resting stomach is kept in a state of moderate tension by counterbalance of vagus and sympathetic and this state of tension appears to have much to do with wanting to eat. The passage of the swallowed morsels down the oesophagus brings about a temporary dilatation of the stomach (probably another instance of the law of the intestine), and then towards the close of the meal, the tension gradually returns until satiety is felt.

In an atonic stomach we first of all fail to obtain the tone which initiates the desire to eat, and after the entrance of food into the stomach, the gastric wall contracts so little that there is but slight satisfaction obtained from the meal. On the other hand there may be an over-contracted stomach hypertonic especially in the pyloric region where the desire for food is intense, but a small portion satisfies. It is in these latter cases, when of an extreme type, that the food excites sufficient contraction to produce pain, nausea and vomiting. Such persons will tell you that they are afraid to eat.

I do not believe that the degree of acidity in the stomach has any direct effect on the desire for food, excellent and even excessive appetite is not inconsistent with gastric achylia.

#### (2) Belching and Regurgitation

Occasional eructations of gas during or shortly after a meal are not of clinical importance, and are due to the cardia being well relaxed during eating and for a short time afterwards, but belching may become a most annoying symptom.

The most important factor in etiology is an increase in intragastric pressure (or hypersensitivity to normal pressure) which imparts to the patient a feeling of fullness in the epigastrium and comes from muscular contraction in the stomach wall. This pressure may be due in part to swallowed air or gas from fermentation. The pylorus is less easily opened than the cardia so that the latter is forced and air comes up into the mouth. The apparent relief to be obtained by opening the cardia leads these patients to make swallowing efforts for that purpose and this may degenerate into the obnoxious habit of air swallowing. It must not be forgotten however that the victims of this habit have usually an organic basis for the initiation of their custom.

The tonic contraction of the gastric musculature is not seldom a reflex effect most

commonly from the gall bladder, but also on occasions from the cardio vascular and pulmonary systems.

Regurgitation is a further development of the relaxation of the cardia, and the symptoms produced depend upon the contents of the stomach. As a rule the later after a meal the regurgitation occurs, the more distressing the resulting post sternal pain or heartburn because the acid peptide combinations have a higher hydrogen ion concentration than acid protein. If the acid regurgitations are severe and continue over a length of time as in pregnancy they may result in oesophageal stenosis from scalding of the mucous membrane.

#### (3) Nausea and Vomiting

Nausea is associated with marked gastric spasm especially towards the pyloric part with no peristaltic waves. The spasm increasing, reverse peristalsis sets in the abdominal muscles and diaphragm contract the cardia is forced and vomiting occurs.

Nausea and vomiting result from so many and varied reflexes that any description here is impossible.

#### (4) Hemorrhage

Frank hemorrhages which show themselves by bloody vomitus and later by tarry stools are by no means always the result of ulceration. An even commoner cause than ulcer I believe to be rupture of veins in the oesophagus or in the pyloric region when long continued spasm results in engorgement and varicosities. It is only in the very severe general infections and toxemias that we see generalized oozing from the mucous membrane.

#### (5) Pain and Tenderness

To obtain a proper perspective of painful sensations in the abdomen it is advisable to review briefly something of that which we know of the primitive digestive tube and its accessory organs. From the embryonic foregut are derived the pharynx, oesophagus, stomach and duodenum and through the latter the liver, pancreas and gall bladder. Among these we expect an affinity of function and also a closer relationship of the duodenum to the stomach than to the remainder of the small bowel, which originates in the midgut.

Any analysis of the maze of abdominal reflexes requires close observation of nerve supply. The more important motor nerve provision arises through the bulbar and sacral autonomic outflows, but there are also fibres from the thoracic-lumbar autonomic which reach the ileo caecal valve, the internal sphincter and perhaps the pylorus. The sensory fibres are mainly from the thoracic-lumbar outflow but there are others which grow out from the somatic areas where the supporting membranes to the fully developed organs are placed.

The internal viscera are segmentally related to the skin and muscle segments, and this relationship conforms to the foetal formation of these viscera, likewise the peculiar curving of the alimentary tract determines on which side of the body the somatic nerve connection develops

The principal connection with the cord of the various viscera are as follows

- Stomach—6, 7, 8, left
- Liver—5 to 9, right
- Gall bladder—9 and 10 right, near middle line
- Pancreas—5 to 9, left
- Appendix caecum and lower ileum, 7, 8 and 9 left
- Colon lower thoracic and upper lumbar

Irritation of the mucous membrane, whether intact or not, has been pretty generally discarded as a cause of abdominal pain, and it is now recognized that the important etiological factor lies in the distention of the unstriped muscle in the walls of a viscus. This may be due to organic obstruction, but more frequently is caused by an excessive contraction or spasm of the visceral wall, the result in turn of a reflex from some other part of the body. Interference with the law of the intestine, that excitation causes contraction above, and inhibition below, is a prolific source of painful sensations.

The feeling of pain is primarily a viscerosensory reflex referred to the skin and underlying tissue which has a nervous relationship to the organ involved. This in most cases occurs in the somatic area in which the offending organ underwent its development but because the sympathetic filaments in the covering peritoneum have a different origin, when it is affected the sensory reflex takes place directly over the organ involved.

As well as the viscerosensory reflex I think that we must admit that at times there is a direct pain on pressure over the diseased organ.

Bearing the above considerations in mind, we can now make a more intimate survey of painful sensations associated with individual abdominal lesions.

Appendix inflammation causes first of all the visceral reflex, pylorospasm resulting in pain, nausea, and vomiting. Then the developmental somatic areas are involved, with pain in the left hypochondrium or at the umbilicus, and perhaps tenderness over the 7th, 8th and 9th left dorsal nerve roots. Finally, when the peritoneum is involved the pain and tenderness settle in the right iliac fossa.

One hesitates to approach that most tangled skein in medicine, the subject of duodenal and gastric ulceration but with the hope of clarifying rather than adding to the present confusion, the attempt must be made.

To any close observer of the individuals suffering from duodenal ulcer the fact must stand out

vividly that a large percentage of them show signs of vagus overactivity, the most obvious signs of that overactivity being slow pulse, cold, moist hands and feet, dermographism, spastic colon, and gastric hyperacidity and hypersecretion. To two effects in particular I wish to draw attention, duodenal spasm and gastric hyperperistalsis, for these are the foundation of the well-known hunger pain.

When the stomach is empty or nearly empty, the normal contraction of the first part of the duodenum, by the over irritable vagus, emerges into marked spasm, at the same time the deeply cutting gastric peristalsis sweeps pylorusward, and the result is distention of the pars pylorica and pain. The explanation I wish to bring forward is, that the so-called symptoms of duodenal ulcer are in reality the symptoms of duodenal spasm, which in turn is caused by reflex vagus action from appendix, throat, gall bladder, or hernial rings. Ulceration is probably due to the spasm, and is a more or less accidental happening, also in itself it does not give rise to symptoms except by increase of local spasm, hemorrhage, obstruction, or peritoneal irritation.

The short clinical history of a case may better illustrate my meaning. A man of twenty-six has had duodenal ulcer symptoms, so called, at intervals for four years. He had pain late after meals, relieved by food or alkalis, occasional vomiting of highly acid contents, but no evident hemorrhages.

Examination showed very marked vagus hyperirritability, slow pulse, cold hands and feet, spastic constipation. Also pressure over McBurney's point caused pain, which was referred to the epigastrium. The X-ray showed caput spasm, so severe and persistent that an ulcer diagnosis was given.

Operation disclosed an inflamed and adherent appendix, which was removed, and a duodenum and stomach which showed no pathology.

Immediately following the operation all signs and symptoms, both of vagus irritability and duodenal ulcer disappeared. The pulse came up to normal and remained there and the duodenal spasm has gone.

Ulceration in the stomach has a wider origin than that in the duodenum, but it also is bound up with reflex spasm and distention. Many ulcers appear to be associated with and are probably secondary to duodenal spasm, reflexes from a diseased gall bladder form the basis for others, epigastric herniæ may be a cause, and other less-known reflexes.

The symptoms here again are not the symptoms of the ulcer *per se*, but come from spasm and distention. The distention is more frequently of the entire stomach, and not of the pyloric vestibule alone, and it is the muscle stretching which prevents healing from taking place.

Gastro-enterostomy relieves the hunger pain symptom by providing a safety valve and preventing distention, but unless the origin of the vagus irritability is removed, does not cure the ulcer in the duodenum. In gastric ulcer it may bring about healing of the lesion by stopping distention and muscle stretching.

It is cholecystitis with or without stones, that we get the most extensive and varied reflex effects and findings. In the first place, there is tenderness over the gall bladder area, referred to epigastrium, left lower axilla or precordium. The back and shoulder pain and tenderness is due to coincident liver involvement as a general rule, as is also the tenderness under the costal margin which is referred up towards the right nipple. It is possible that in rare instances there is a filament from the phrenic to the cystic duct.

There is one sign I have never found absent in gall bladder disease that is spasm of the left half of the transverse colon, with tenderness on pressure over it just to the left of the middle line. Also very commonly, there is a tender area just below and to the right of the umbilicus. I am at a loss to account for the reason of these reflexes but the colonic spasm is the probable source of mucous colitis, which is seldom found unless gall-bladder disease is also present.

Another reflex one sees occasionally, is oesophageal spasm, evidently of vagus origin and in this connection an important consideration arises in that the gall bladder is supplied by the left vagus which has little effect on heart rate so that brady cardia does not occur as a reflex from that organ though it may do so from the presence of bile in the blood stream.

I feel that I have touched only the fringes of this vast subject and even so I expect many will disagree with my conclusions. If I appear to have turned unproven theories into dogmatic statements unjustifiably, let my earnest desire for the advance of gastro enterology plead for leniency in your judgments.

### PNEUMO-PERITONEAL ROENTGEN RAY DIAGNOSIS\*

By ARTHUR STEIN M.D. and  
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FROM the beginning, the twentieth century has been characterized by a wealth of remarkable advances in the domain of medicine and surgery as well as in most other fields of human endeavor with the result that the science and art of the professions now rest on a broader and firmer basis than ever before while the prospects of a cure in many hitherto baffling conditions have been wonderfully increased. Roentgenography of the abdominal contents after gas inflation of the peritoneal

cavity, ranks high among these contributions to our knowledge.

Much interest has recently centered around the employment of pneumo peritoneum with Roentgenography, as a means of visualizing the contents of the abdominal cavity. This method consists in artificial inflation of the peritoneal cavity, preferably with a definite gas or mixture of gases, preparatory to making the Roentgen examination. The safety and harmlessness of the procedure in skilled hands is so universally admitted as to render it superfluous to dwell upon these features which are naturally essential to the applicability of any diagnostic procedure. As shown by our own observations in nearly one hundred and seventy five examined cases, and confirmed by the experience of other observers, no untoward results of any kind detract from the value of this simple but highly efficient diagnostic procedure which has already stood the test of time, and while extremely easy of application has been found greatly superior to all other methods of examination for the recognition of intra-abdominal lesions of all kinds especially those involving the solid organs. It is the only method capable of determining the extent of adhesions between the viscera and the abdominal coverings as well as the contents of herniated abdominal walls. Induced pneumo peritoneum is equally serviceable for the early diagnosis of peritoneal tuberculosis and for the recognition of the extent of the disease. Localization of projectiles in and beneath the diaphragm is rendered comparatively simple. In fact any sub-diaphragmatic lesion can usually be cleared up by this method. It offers good prospects for rendering a positive diagnosis in diseases of the liver and gall bladder, where the customary methods of clinical and physical examination are often found insufficient. We are now able in many cases to show pathological enlargements, deformities and adhesions of the gall bladder. Not only that, but in a number of cases we have shown clearly and distinctly large single stones as well as innumerable small stones.

Retro peritoneal growths can also be clearly outlined. An enlarged spleen which has escaped detection through palpation can often be recognized and changes in the position of the organ be ascertained by means of induced pneumo-peritoneum and Roentgenography. Remarkably clear and distinct Roentgenograms of the kidney have been obtained with the assistance of artificial inflation of the peritoneal cavity which also affords accurate information as regards the size and shape of the organ besides indicating the type and degree of renal motility. Although the condition of the female pelvic organs can be more or less satisfactorily ascertained by means of the older methods, in the majority of cases peritoneal inflation with X-ray examination will probably find an application also in the domain of gynecology.

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4, 1921.

cological diagnosis, especially in deeply situated abdominal neoplasms. Its constantly increasing range of applicability is characteristic of the method.

As to actual *contra-indications*, the existence of acute abdominal conditions such as acute appendicitis or peritonitis naturally prohibits the employment of the method of abdominal inflation. Nor should this procedure be carried out in known cases of valvular disease of the heart, for more work is required of this organ when the abdomen is inflated than under ordinary conditions. Our experience has shown that a certain type of elderly persons, notably men who have used alcohol in excess, does not readily lend itself to the employment of this method. On the other hand, the average man, woman or child is a perfectly satisfactory subject and with the adoption of the deflation method described above the performance of entirely painless inflations will soon become the rule.

In the present simplified technique for the application of pneumo-peritoneal Roentgen examinations, the only accessories required are an ordinary lumbar puncture needle, two sections of small rubber tubing, each measuring about three feet in length, a rubber bag with a capacity of about four liters (such as is used with the gas-oxygen anaesthesia apparatus), and a tank containing the gas which one intends to use. One section of the tubing is connected, one end to the tank and the other to the intake of the bag. The second section of tubing is thoroughly sterilized and connected to the outlet of the bag, the apparatus is then ready for application.

The patient is prepared as for any Roentgen examination, by a thorough cleaning out of the bowels and emptying of the bladder just before the inflation. The administration of one-quarter of a grain of morphine fifteen minutes before the induction of pneumo-peritoneum is recommended for the simple reason that it dulls the edge of any pain which may arise when the abdomen is distended to its full capacity. In many cases not necessary at all, it is of great help in others, its degree of usefulness varying with the individual temperament.

The needle (properly sterilized) is inserted about one to three finger breadths below the umbilicus in the median line. The skin in this vicinity is thoroughly cleansed with tincture of iodine. Existing scars are to be avoided when inserting the needle, a location should be selected where it is reasonable to expect that no adhesions will be encountered. We have found that a local anaesthetic before introducing the needle is entirely unnecessary, merely taking a fold of the skin tightly between the fingers is sufficient to counteract any pain on introduction. The needle should be slowly inserted as far as the fascia—the thickness of the abdominal wall being easily gaged by any surgeon—a gentle pressure will then

ease it through the fascia and peritoneum into the abdominal cavity. The needle is then connected to the free end of the rubber tube attached to the outlet of the bag, which has been previously filled with the selected gas, a stop-cock at the outlet of the bag is turned on and the gas allowed to slowly pass into the peritoneal cavity—gentle pressure on the bag will sometimes be necessary in order to force in the required amount.

The bag fulfills two purposes—First,—it allows full expansion of the gas before introduction into the peritoneal cavity, and second,—the gas having fully expanded, soon assumes the temperature of the surrounding air and becomes more or less warmed before insufflated, which is very desirable, although we have never felt the necessity of using any special warming apparatus, nor have we used any method of filtration or sterilization of the gas, believing the less complicated the method the less danger of infection. So far we seem justified in our contention, having used the method in nearly one hundred and seventy-five cases without any untold effect.

The question of whether the point of the needle is within the peritoneal cavity is interesting, some authors recommend the injection of a small amount of saline solution, others watch the inflation under the fluoroscope. We have depended more on the tactile sense of the surgeon, who rarely fails to know whether he has entered the peritoneal cavity or not, if there be any question, gentle pressure with fingers is made around the needle and with the ear near the anterior abdominal wall, a slight roar can be heard as the gas enters the abdomen. It is important that this question be decided before much gas is allowed to flow as an emphysema in the extra-peritoneal structures interferes with good Roentgen detail. If the abdominal walls are relaxed, one can "catch up" a fold while introducing the needle, this assists not only the passing of the needle, but raises the parietal peritoneum away from the intestines and there is less danger of puncture than otherwise.

The quantity of gas used depends largely upon the condition of the anterior wall, if there is much relaxation one must use considerable, usually four liters. If one is dealing with a young subject with a firm abdominal wall, about two liters are sufficient. The essential feature is to obtain a moderate distention so that the abdomen is distinctly dome shaped and the anterior abdominal wall about as tense as the head of a drum. The required amount of gas having been insufflated, the tube is disconnected, the needle quickly withdrawn and the site of the puncture covered with a small piece of adhesive plaster. The entire method is strictly surgical and should be attempted only by one with surgical experience. The procedure is conducted throughout under modern aseptic precautions.

In selecting the gas to be used, one is in-

fluenced by the character of the Roentgen examination required. If, for instance, the case is one calling for only an examination of the liver and gall-bladder region, or in fact any case requiring a short X-ray examination, carbon dioxide is the best, as it will be absorbed in about twenty minutes. It is ideal where quick X-ray work can be accomplished, the advantage being that the abdominal tension will have disappeared before the effects of the morphine have worn off. For more lengthy examination the authors have successfully used a gas consisting of two parts of CO<sub>2</sub> mixed with one part of oxygen. This is usually absorbed in about thirty-five to forty minutes. For Roentgen examination of the entire abdominal contents, pure oxygen is used; this gas is not absorbed rapidly and gives ample time for investigation both fluoroscopic as well as roentgenographic and after the roentgenographic examination the needle can be reinserted and the abdomen deflated.

We have never felt it advisable to leave the needle in situ where oxygen has been used, as more danger could be expected from such a procedure than from reinsertion. The roentgen examination requires the patient to be placed in so many different positions that a retained needle would be more liable to traumatize the peritoneum if not occasion a puncture of the intestines.

The recent improvement of the technique in the form of abdominal inflation with gases which are quickly absorbed brings the method into the scope of an office procedure and will undoubtedly accelerate its adoption in constantly widening circles. This is an especially gratifying achievement in view of the relatively brief existence of the diagnostic method of artificial pneumoperitoneum in combination with Roentgenography.

It is not our intention to review the entire history of this procedure but we shall simply point out some salient milestones on the road that has led from the first incomplete attempts to the evolution of the most modern of all diagnostic methods at our disposal. Although the introduction into this country of the method of diagnostic inflation and Roentgenography of the peritoneum dates back only a short time (to be exact to the Atlantic City meeting of June, 1919, when the first demonstration was made by the authors before the American Association for thoracic surgery, the American Gastro-Enterological Society, and the American Surgical Association), peritoneal inflation for diagnostic purposes is yet uncombined with Roentgenography, was previously known and utilized to a limited extent in Europe more particularly in Germany. In fact Wegner as far back as 1877 investigated the absorptive capacity of the peritoneal cavity for air and found it to be very remarkable, the explanation being the enormous extent of the

peritoneal surface, which includes all the organs and walls lined with peritoneum. He repeatedly inflated the abdomen of his laboratory animals to the highest degree of tolerance without producing disturbances other than a slight dyspnea. The air was usually absorbed by the third day, and no infection of the peritoneum through the germs contained in the air was noted. The first mention of induced pneumoperitoneum without Roentgen examination for diagnostic purposes, in the medical literature occurs in 1902 when Kelling successfully inspected with a cystoscope-like instrument the abdominal contents of two patients, one of them a woman with very relaxed abdominal coverings, while the other was suffering from ascites. Sweden claims the next step in the propagation of the new method, through the painstaking work of Jacobus, of Stockholm, who published a monograph on the subject of laparo and thorascopy under air inflation. Credit for the application of abdominal inflation to Roentgenological technique is due to Weber in Kiev who foresaw that the introduction of air or gas into the abdominal cavity would help to render visible a number of organs, tumors, and regional areas which heretofore had been more or less inaccessible to Roentgen examination. About the same time Dorey showed the outlines of the spleen and liver, and recognized the existence of abdominal tumors by means of the new method. Much careful and systematic work along the line of improvement of artificial pneumoperitoneum and the extension of its diagnostic range was done by Rutenberg who recommended it on the basis of his findings as affording remarkable information about the hidden organs below the diaphragm. Other European names to be mentioned in this connection are those of Meyer-Betz, Goetze, Schmidt, Alessandrini. The gradual entrance of diagnostic pneumoperitoneum into practice is illustrated by the fact that Alessandrini in Italy was enabled in May, 1919 to report forty cases in which the method had been advantageously utilized. Many American writers have made distinguished contributions to this important subject. Rosenblatt, Emerson, Alvarez, Turner, Tierney, Orndoff, Hymn and others showing the interest that has been aroused by this procedure and testifying to its intrinsic merits.

After the first step in a new direction has once been taken advance in a previously inaccessible domain is apt to be surprisingly swift. Now the walls of the human body act no longer as insuperable obstacles to the physician's eye for even at the present day he is enabled to penetrate many mysteries of human pathology, and there is good reason to expect that other problems will yield in the not too distant future to the diagnostic method of induced pneumoperitoneum and Roentgenography.

### Discussion

DR EDWIN M STANTON, Schenectady The association of stomach reflexes with more or less distant pathological conditions is a matter of every-day observation. The vomiting of appendicular, gall bladder and renal colic are typical examples, so also the twisted ovarian cyst and almost any other sort of an occurrence which makes the human animal sick.

Thus far our observations are indisputable and our problems relatively easy.

In addition, we have an enormous number of less sick and semi-sick referring their subjective discomforts to their digestive tracts and particularly to their stomachs, and our real difficulties begin when we try to unravel these symptoms and determine their causes.

In the few moments at my disposal I wish only to emphasize two points bearing on the decisions we must make as how best to deal with each individual case.

First, I want to emphasize the fact that notwithstanding the numerous laboratory tests and X-ray possibilities now available, the carefully taken history remains the one essential factor for success. With a properly evaluated history and general size-up of the patient the additional laboratory and X-ray data may be of great value, but without the history this machine-made data is generally more dangerous than useful.

In reviewing my histories of these cases, both of the successes and the failures, I have been struck by the fact that the essential points on which to make a correct diagnosis were practically always present somewhere in the history. The successful detective who solves the murder mystery is usually he who can pick out a few essential facts from the mass of relevant and irrelevant data. Likewise the man who solves correctly the problems of the reflex abdomen is he who can select from all the data the few essential facts which really bear on the case. In our experience, this really essential data is, most of it, found in the history itself.

One of the most enticing hypotheses ever presented to the surgeon is the one that stomach symptoms may often represent reflexes from appendices or gall bladders, which do not of themselves present symptoms recognizable on their own account.

Now every surgeon here knows just how enticing this hypothesis is. Originally, at least, all patients have appendices and gall bladders, with the potential possibilities of at least one operation.

There is just one obstacle that I have encountered with this enticing proposition. For the past fourteen years I have been so situated that I could and I have kept careful records of the end results in my operative cases. In the years gone by I was reasonably enthusiastic over the subject of reflex gall bladders and appendices,

and I am still diligently searching for them. The fact remains, however, that there is not a record in my office of a patient having been permanently cured of stomach symptoms by myself or any other surgeon removing an appendix or gall bladder which, according to the history itself, did not produce symptoms sufficiently definite to lead to a reasonably certain pre-operative diagnosis of either appendicitis or gall-bladder disease.

I suspect that this assertion may be seriously criticized by many here today. I can cite many cases apparently cured of reflex stomach symptoms for from three to six months following all sorts of surgical interferences within the abdomen, but in my experience these psychological and post-operative rest cures do not persist unless the real cause of the trouble was removed at the time of the operation, and if the appendix or the gall bladder are the real cause they almost invariably produce definite and clearly recognizable attacks with the symptoms of appendicitis or gall-bladder disease.

### UROLOGIC DIAGNOSIS IN THE PRACTICE OF THE GENERAL SURGEON\*

By LEO BUERGER, M.D.,  
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IN presenting this paper I will limit myself to the subject of Urologic Diagnosis in so far as it would be of interest to the general surgeon—he who has neither the opportunity nor the time to become expert in those varied methods developed of late years in urologic practice—it seemed to me that it would not be amiss to emphasize by analogy and clinical example how the general surgeon can make use of the specialist's knowledge for the direct benefit of his patient and with indirect enhancement of his own professional reputation as a sequence. Not only in the affections of the urinary tract and the sexual adnexa, but also in that most interesting and difficult territory of abdominal diagnosis, is the application of modern urologic investigation very frequently necessary and often essential. What with the refinement of modern diagnostic procedures, what with the development of highly specialized instruments that require considerable experience for their proper application, and what with the extensive practice essential for the correct interpretation of objective findings, it will be conceded that the general surgeon will be served best were he to co-operate in his practice with one who has both the time and experience to become and to remain thoroughly conversant with the most improved and latest technical manipulations. If, by my paper, I shall succeed in calling attention to the great need for educating some of our younger men in the field of urologic diagnosis, and also to the advantages of

\* Read at the Annual Meeting of the Medical Society of the State of New York, at New York City, March 25, 1920.

co-operative work between the general surgeon and such diagnostician, my time will not have been spent in vain.

To attempt an extensive or comprehensive discussion of so large a subject would take me far beyond the scope of my paper. Let me, therefore, confine myself to the citation of a number of striking examples illustrative of my theme.

**Calculus of Ureter with Symptoms Simulating Intestinal Obstruction and even Peritonitis.** The surgeon will not infrequently be called to see a patient in whom the diagnosis of intestinal obstruction has been made, and if he is not careful to elicit a history of previous lumbar pain, and if he cannot definitely establish the existence of costo-vertebral tenderness, radiating pain down from the lumbar region into the groin, into the iliac region or into the testicles, or, if blood in the urine be wholly absent, he may be venturesome enough to advise an exploratory laparotomy. That such a procedure may be fatal when we are dealing with a case of impacted ureteral calculus producing symptoms of ileus, I have had occasion to observe in a patient who was operated upon by a colleague in one of our large hospitals. In this case the diagnosis of intestinal obstruction was made, and a laparotomy performed. As was expected nothing was found but some doubtful adhesions, and the patient succumbed suddenly thereafter with uremic symptoms due to suppression of urine, and the autopsy showed a calculus blocking the lower left ureter.

During the last two years I have been able to diagnose five such cases, all of whom gave the symptoms of intestinal obstruction, the fifth presenting a picture in which the features of intestinal obstruction were associated with symptoms of peritoneal irritation.

L. S. B., male, presented the following clinical picture. A distended abdomen, constipation, severe pain in the left iliac fossa, rigidity of the left iliac region, distinct rebound tenderness and per rectum a small indefinite mass high up in a cul de sac on the left side.

Cystoscopy demonstrated that there was urinary retention in the left ureter and kidney for about 1 ounce of turbid urine containing some red blood cells without pus, could be collected in a continuous stream when a catheter was inserted some 10 cm. into the ureter, suggesting a calculus low down in the ureter, with hydro-ureter and acute hydronephrosis.

In spite of the relief that was afforded in this case by the emptying of the kidney, distinct aggravation of the symptoms occurred on the following day when the temperature rose to 102° in the afternoon. It was surmised that by virtue of the swelling of the ureter, obstruction had again taken place so that catheterization of the ureter was again in order. On the following day, October 6th, the tongue was coated the left side of

the abdomen was hard, with board-like rigidity, the temperature was 103°, and the patient was unable to take food, in short, symptoms suggestive of a combination of intestinal obstruction and possibly peritonitis.

On the 6th of October, therefore catheterization of the left ureter was done again, and the same phenomena of retention of urine could be demonstrated. So great was this retention that pressure over the kidney and bladder region, as well as over the left iliac fossa increased the flow through the ureteral catheter. Two ureteral catheters were then inserted into the left ureter up to the kidney, and the cystoscope removed the catheters being allowed to remain from the time of insertion, 3 P. M., on October 6th, until the next morning at 9:30.

On the 7th of October, the following day, the abdomen was distinctly less rigid, the patient's condition considerably improved, the temperature having dropped to 100°. The catheters were then slowly withdrawn simultaneously, and as they were pulled out, it seemed that an obstruction to their exit could be distinctly made out. As they were withdrawn, this resistance was seen to be due to the expulsion of a ureteral calculus that was tightly adherent to the two catheters, and was drawn through the ureter, bladder and urethra without being dislodged—a most remarkable and unusual occurrence.

From then on the patient made an uneventful recovery.

If the surgeon need be cautious in setting the indication for laparotomy, lest he be led into the pitfall of failing to recognize the existence of a ureteral calculus blocking the lower pelvic ureter and causing reflex intra abdominal symptoms he should likewise try to avoid the mistake of ascribing colicky pain in the right iliac fossa to an inflamed appendix, when in truth he is dealing with an impacted calculus in the lumbar ureter. For, although a ureteral calculus lodged in the pelvic ureter may also give the symptoms of chronic or subacute appendicitis, a stone in the lumbar ureter is more apt to be mistaken for a retrocolic appendicitis. The dictum that should be laid down therefore, which should be closely followed, and which cannot be too strongly emphasized, is to the effect that in every instance of doubtful appendicular colic, the cystoscope should be employed, as well as X-ray examination, to determine whether the usual evidences of the existence of a ureteral calculus can be obtained or not.

Signs of retention of urine in the ureter or renal pelvis, either with or without demonstration of ureteral obstruction, and these objective findings with or without a shadow in the path of the ureter on the X-ray plate or with or without the obtaining of scratch marks on a wax-tipped catheter passed into the affected urinary tract



If in the chronic or subacute cases of suspected appendicitis in females, one follows the rule to carry out a careful vaginal examination with the view to detecting the existence of a calculus palpable *per vaginam*, many errors will be avoided. A nodular and indurated ureter, however, felt *per vaginam*, must not be mistaken for a calculus, since such signs of ureteritis are more frequently pathognomic of a tuberculous process than of ureteral stone.

*Uric acid concretions and ureteral obstructions*—The services of the urologist and cystoscopist will be found of exceedingly great value to the surgeon in that interesting group of cases of urinary lithiasis in which uric acid concretions are passed from time to time into the ureteral tract causing more or less complete obturation by virtue of the impaction of single concretions, or by reason of complete filling of a portion of the ureteral lumen with debris, concretions and altered blood.

When such a patient is referred to us with the history of lumbar, hypochondriac or obscure abdominal pain radiating into one or the other groin or iliac region, with definite urinary findings, such as the presence of red blood cells, our suspicion as to the true nature of the affection will doubtless be at once aroused. However, many are the cases in which during the period of examination of the urinary specimen, practically no blood cells detected, and the local symptoms referable to the urinary tract are meagre or practically absent. In such instances we get the history of abdominal pain and if we do not carefully elicit its exact localization may often miss the fact that the pain had on certain occasions been more severe in the lumbar region, and had at times shown typical evidences of radiation. It is when the ureter becomes completely blocked with debris, concretions and altered blood, that no more excretion from the affected kidney can take place, and that the time arises when negative urinary findings are reported.

So, recently I was called in to see a patient, upon whom the diagnosis of ovarian trouble had been made by a local surgeon and who received the advice to have the ovary and appendix removed. Not satisfied with this diagnosis, it appeared to me that the cystoscope would certainly aid in clarifying the picture, and was not a little gratified when, following the insertion of the ureteral catheter, not only a large amount of old retained urine was evacuated from the kidney, but a considerable amount of debris, altered blood, and urinary concretions was collected and caused to be emitted alongside of the catheter into the bladder.

That the amount of the urine retained in the kidney and the ureter, as well as the amorphous material blocking the ureter, was out of all proportion with what was collected at one cystoscopy, could be easily demonstrated in this case, when,

on a second cystoscopic examination, some two days after the first, the affected ureter was found swollen and gaping. Manipulation with the ureteral catheter was succeeded by the extrusion of a considerably lengthy mass of brownish material in tape-like formation in a manner simulating that of pus extruded through the ureter from a pyonephrotic kidney. Such masses of intra-ureteral stuffing (if such term may be applied) may be of such firm consistency, that they retain their tape-like form for some time after they have been emitted and propelled by the intravesical current into the *bas fond* of the bladder.

When a ureter and kidney are freed of such material by irrigation through the ureter catheter, or if necessary by the use of the retention ureteral catheter for a period of 24-48 hrs., rapid restoration to the normal may be expected.

*Ureteral Blockade with Concretions and Altered Blood, Associated with Fever*—The experienced urologist not infrequently encounters cases of what may be justly termed aseptic fever in the urinary tract. Such febrile conditions are attributable to retention of urine in the kidney with blockage of some part of the ureteral tract and may be unaccompanied by any of the usual products of pyogenic infection in either the urine from the ureter or pelvis of the kidney. In such cases I have been able to convince myself after repeated examinations, both with the microscope and by careful cultural methods, of the compatibility of the absence of white blood cells and micro-organisms, with high temperatures. Let us, therefore, be careful to avoid the error of early operative intervention when a case of high fever with lumbar pain, attended possibly with distinct enlargement of the kidney, presents itself, and let us not forget that the ureteral catheter may demonstrate merely retention of urine in a kidney due to the passage of a calculus or obturation of the ureter with debris, old blood and concretions. Whether minimal and transitory lesions of pyelonephritis or even embolic infectious foci in the renal parenchyma are present here, I have had no means of determining.

Some eight years ago I had the good fortune to cure a case, in which immediate exploratory operation on the kidney had been advised, by the mere introduction of the ureter catheter, the washing out of debris and amorphous material from the ureter, and the draining of the kidney by the ureteral catheter for several hours. The temperature dropped immediately from 104° to normal, and the patient has had no recurrence during all these years.

*Multiple Phosphatic and Uric Acid Calculi with Negative X-ray Findings in Cases Diagnosed as Chronic Nephritis*—Perhaps it is the medical man more often than the surgeon who will be consulted by those interesting patients with chronic backache, with occasional hematuria, high blood pressure and other evi-

dences of chronic nephritis, in whom the history has never aroused the suspicion of the existence of multiple urinary calculi as a factor in the clinical picture.

It is in such cases of so called nephritis, where, either because of the composition of the stone or the stoutness of the patient, a satisfactory X-ray examination is impossible, that most reliable and gratifying data are available, if we only apply the proper means of investigation, viz the cysto-scope and ureter catheter.

Thus in the case of a male patient (J S, 55 years of age) who had had occasional edema of the legs for some three years, attacks of diminution of the urinary output, and one attack of "gravel" during which he is said to have passed some sand, a most striking example of how the gravity of the situation can be underestimated was presented to us.

Although refusing cystoscopy at the first consultation, because of the persistence of the hematuria, the patient finally submitted to the examination on the 17th of May, 1919, when we were able to disclose definite evidences of retention of urine in the right kidney with the presence of some microscopic pus with urine from the left kidney also containing leucocytes.

**Tentative Diagnosis**—Infection of the right kidney pelvis with retention (hydronephrosis), probably bilateral calculous disease with possibly a stone in the right ureter near the uretero pelvic junction.

Some five days later, because of severe attack of renal colic on the other (left) side, cystoscopy was again done and marked retention of urine was demonstrated in the *left kidney* about 45 cc of dark brownish urine being collected. In the right ureter there was an obstruction at 18 cm from the bladder, one that could not be passed and no urine could be collected from the right kidney on this day.

Therefore the patient had evidently passed a calculus or calculi into the right ureter during the interval between the first and second examinations (about 1 week) with the establishment of complete blockage of the right kidney and further had developed retention in the sister organ.

Then uremic symptoms began to make their appearance, and on the 24th day of May, suppression of urine the symptoms of uremia becoming progressively more pronounced.

On the 24th of May, the obstruction in the right ureter was again encountered and no urine was obtained, while the obstruction in the left ureter was overcome and again almost two ounces of a dark brown fluid were evacuated from the left ureter. The catheter in the left kidney was allowed to remain *in situ*. Because of the increasing diminution of urinary output the blockage of the right ureter, since practically no urine was passed from the left kidney for some hours, and since the retention catheter had produced merely

temporary relief without inciting the right kidney to functionate, it was decided to operate on the right kidney on the next day.

At operation, an extremely hard and enlarged right kidney was found, and the right ureter could be felt enormously distended down to a point corresponding to the site of the suspected calculus. Here a calculus was found impacted in the ureter. It was dislodged and removed, the kidney was decapsulated and a tube inserted.

Although temporary improvement occurred the patient succumbed about a week later with the usual symptoms of uremia.

**Conclusions**—We were evidently dealing here with a case of chronic nephritis, complicated with bilateral calculous disease in a man whose life might have been prolonged had the diagnosis been made earlier, perhaps years before, through the timely application of the cystoscope.

**Renal and Ureteral Lithiasis**—Although the importance of the X-ray examination of the urinary tract in the diagnosis of ureter and kidney stone is not undervalued by the urologist, the general surgeon who includes the operation on the urinary tract in his domain, should learn by following the work of the urologic specialist, that the data obtainable through cystoscopy, as well as the application of the X ray and cystoscope and ureter catheter, are indispensable means for a complete evaluation of the indications for operative procedure. He who would operate upon a kidney or ureter for renal or ureteral stone in the light of our present knowledge, without resorting to the use of the cystoscope for additional information as to the function of the kidney, and as to the existence of an obstruction of the urinary tract will not only frequently fail to find the calculus for which he searches but will soon learn that he cannot correctly set the indications for selective operative procedure when he bases his plans for intervention upon the findings of radiography alone.

I shall not dilate upon the identification of suspected shadows within the ureteral path by that well known method of introducing a shadow-graph or opaque catheter, nor shall I discuss in full the value of visualizing the pelvis of the kidney and ureter by the injection of opaque fluids, such as sodium bromide or thorium nitrate for the production of pyelograms or ureterograms for these methods are well known to all of you. But I shall merely press in review a few pictures and let them be accompanied by comments on diagnosis and clinical course, that in my opinion may be of some value to those who have not the opportunity of encountering large numbers of cases in this field, for to them these pictures may be of more than passing interest.

**Renal Stones**—If your roentgenologist is able to demonstrate a well defined renal shadow in most of his radiograms, you will be greatly aided

in the localization of the suspected stone within the renal area and can often accurately gauge its site so that search at the operating table will not be prolonged

In the lantern slide you will see a typical calculus of the flat numular type, situated in the pelvis of the kidney. The indication for intervention in such cases will depend greatly upon the symptomatology, the degree of pain and discomfort, and the presence and the amount of the hematuria, and particularly upon the cystoscopic findings, whether these demonstrate the existence of infection or blockage either of the pelvis or uretero-pelvic junction. It is these two factors that play the greatest role in determining our attitude towards surgical procedure, and for the elucidation of which the urologic methods of cystoscopy, the application of the shadowgraph catheter, and more rarely of pyelography, are essential.

When we are dealing with a calculus of the pyramidal or triangular variety, *with a beak or apex pointing down and into the uretero-pelvic junction*, we may feel confident that the time will soon arrive when considerable blockage of the uretero-pelvic junction will take place. Such calculi are prone to be associated with infection, and should be removed at the earliest date.

Although it is true that the experienced interpreter of the roentgenogram can foretell much regarding the pathology of a kidney harboring calculi from a careful study of the renal shadow, the size and shape and number of the intrarenal shadows, their change in position, excursions and configuration, much additional information will be forthcoming if the urologist will insert the opaque catheter for purposes of further localization and diagnosis.

Thus, the mere consideration of the X-ray plate throws much light on the type of kidney present. For in the lantern slide the multiplicity of the shadows, their wide separation occupying a territory from the iliac crest almost to the eleventh rib even without a distinct renal outline, proclaims the condition to be one of a hydronephrotic or pyonephrotic kidney of large size with multiple calculi.

So, too, in another slide, the two well-separated groups of dentritic or branching calculi representing casts of two distinct pelvises, suggests the diagnosis that had been confirmed through cystoscopic means of the existence of two separate pelvises filled with branching stones.

The identification of other shadows that to some surgeons appear to simulate calcified glands by reason of their size and irregularity is greatly aided by use of the cystoscope and shadowgraph catheter as seen in the slide. Such large shadows as depicted in this slide would excite some hesitation in the mind of the casual interpreter as to whether a calculus in a diverticulum of the blad-

der, a vesical or ureteral calculus were at hand. It was the cystoscope alone that permitted the exact localization of the enormous *ureteral calculus* that was subsequently removed by me by extra-peritoneal ureterotomy.

*The Shadowgraph Catheter*—Not only in the identification of suspected ureteral stone and in the exclusion of certain extra-ureteral shadows from consideration, is the shadowgraph catheter of value, but also in the localization of shadows within the renal area. A properly inserted shadowgraph catheter frequently gives valuable information regarding the situation of stones within the kidney. The next slide shows but one of a large number of my own series of observations of this kind. In hydronephrosis when the catheter can be made to enter the kidney proper (and not when it is arrested at the uretero-pelvic junction) a wide excursion of the ureter catheter into the flank, as seen in the slide, tells a complete story of renal enlargement that the diagnosis of hydronephrosis with or without infection can be readily made without resorting to the more dangerous procedure of pyelography.

In cases of multiple ureteral calculi we are apt to be misled by the shifting of the shadows, by their mesial position, and even cystoscopy, if carried out only once, *may reveal normal urine, although possibly diluted, from one or both ureters*. The shadowgraph catheter not infrequently makes either a loop or a complete turn in the ureter, such as in Fig 8, demonstrating the existence of a hydro-ureter or a dilated ureter, and the tortuosity of one or the other ureters, and its redundancy can frequently be demonstrated by the wide excursion into the iliac region taken by the opaque catheter.

The formation of such a loop within the ureter by the shadowgraph catheter in a ureter harboring several (5) stones, is demonstrated in the next slide.

Occasionally, in a case of negative or doubtful X-ray, a ureterogram will demonstrate ureteral dilatation above an impacted calculus, and give valuable indications for intervention.

*Pyelography in Diagnosis*—Although the visualization of the ureter and pelvis by the injection of opaque fluid is exceedingly valuable at times, its employment should be restricted by reason of certain dangers that always have and will attend such methods. Fortunately in sodium bromide we have a fairly reliable and safe solution but with the enlargement of our experience there follows *pari passu* a restriction in the sphere of application of pyelography. Its importance in certain cases, however, cannot be denied.

The slide shows a fairly normal pelvis injected with an opaque solution, and the next slide shows the drawing out and distortion of the pelvis in a case of hypernephroma in a spider-like fashion. Occasionally the existence of ureteral stenosis can be demonstrated to our satisfaction, as was the

case in a patient who had a closed tuberculosis of the kidney with ureteral stenosis

So, also, in children with congenital dilatation of the ureters, or with dilatation of the ureters and pelvis of the kidneys due to peripheral urinary obstruction, the filling of the bladder with sodium bromide and the placing of the child in the Trendelenburg posture, may permit of the filling of the ureters and their graphic demonstration as dilated tortuous channels

**Hydro-Ureter and Hydronephrosis in Infants and Children**—Not only in adults, but in children as well as in infants, the development of the modern so called *baby cystoscope* has made it possible for us to diagnose with the greatest of accuracy lesions of the bladder and kidney both by visual examination, by ureteral catheterization, and by the application of pyelography

Some three weeks ago, it was my good fortune to be able to determine in a little girl two years of age that the stereotyped diagnosis of pyelitis of children was erroneous, for the cystoscope and ureter catheters demonstrated that the right kidney contained considerable pus and that there was some retention of urine in the renal pelvis. A diagnosis of infected congenital hydronephrosis was easy to make, nephrectomy was done, and a beautiful example of one of the forms of congenital hydronephrosis with a pin point opening at the uretero pelvic junction, was obtained at operation. The baby made an uneventful recovery

So, also the diagnosis of tuberculosis can readily be made and in other cases enormous patent ureteral orifices will at once suggest to us the diagnosis of bilateral or unilateral congenital hydronephrosis, and hydro ureter, or hydro-ureter and hydronephrosis dependent upon some obstructive condition in the urethra or dependent upon some nerve lesion. In such patients the introduction of sodium bromide or other opaque fluid and the placement of the patient in the Trendelenburg posture will permit of the regurgitation or reflux of solution into the ureters showing them to be dilated and tortuous

**Concerning Tuberculosis of the Kidney**—In my own experience I can say without hesitation that it is in tuberculosis of the kidney that both the internist and surgeon are apt to delay surgical intervention, by reason of dilatory application of cystoscopic methods, and because the majority of such patients are diagnosticated and treated for a long time as cases of cystitis. Whenever an adolescent or middle aged individual gives a history of urinary frequency, particularly of nocturia, without gonorrheal infection without history of instrumentation, or previous attacks of cystitis a cystoscopic examination should be advised. Day after day patients are brought to my office in whom the latter lesions, such as I

shall show you here, are found, multiple tubercles with superficial ulcers, characteristic ureteral lesions on the affected side, with tubercles and a contact ulcer over the posterior wall, deep ulcers with total erosion of the ureteral lip, with extensive and marked retraction of the ureteral orifice—and in these nephrectomy will show kidneys in a stage of advanced cheesy degeneration, pyonephrotic kidneys that have been involved for months and even years, and a multitude of other interesting pathologic changes. An important circumstance is the frequent separation of cheesy abscesses from communication with the renal pelvis by stenosis of the calyx—a process which accounts for the absence of tubercle bacilli and the apparent 'cure' in some cases after the use of vaccines. Other specimens are seen where a portion of the pelvis and kidney which are tuberculous are distinctly segregated from that portion of the pelvis carrying the ureter by a similar stenotic process. *In such kidneys tubercle bacilli may be absent for considerable days or months, but the lesions about the corresponding ureter will be recognized by the cystoscopist*

**Renal Hematuria**—I can but touch upon this most interesting theme. Most important is it, I believe to submit patients with hematuria to investigation with the cystoscope during the attack of hematuria and not to wait until the hematuria has subsided. How often much valuable time is lost when the urologist is requested to make a diagnosis in the free interval, when neither kidney is bleeding

When the renal bleeding is unilateral you want to have light as to whether such hematuria is due to stone, to tuberculosis intra-renal papilloma, angioma, so called idiopathic or essential hematuria, hypernephroma or carcinoma, etc., or whether you are confronted with those rarer instances of copious bleeding due to hydronephrosis or the bleeding kidney associated with *urethritis cystica* and *pyelitis cystica*, and with polycystic kidneys

The diagnosis of hypernephroma will not be difficult to make in the advanced cases but when we are confronted with a small tumor which has produced no distortion of the pelvis or insufficient to be demonstrated by the pyelogram, an exploratory operation with a presumptive diagnosis may have to be resorted to when the unilateral nature of the bleeding has been proven, and recurrences of bleeding have been sufficient in number to warrant intervention

The so called idiopathic or essential hematuria responds remarkably in some cases to decapsulation, and I have a number of cases in my records where unilateral and bilateral decapsulation have been rewarded by complete cessation of the hematuria

Occasionally you will encounter various forms of lesions in congenital types of hydronephrosis with secondary concretions that occasion most alarming hematuria. In a young girl operated upon by me recently the existence of a hydronephrosis could not be definitely determined because of the stenosis of the uretero-pelvic junction, making the introduction of the ureter catheter into the pelvis impossible, so that the differential diagnosis between tumor and hydronephrosis with calculus could not be made. At exploratory operation a nephrectomy revealed a beautiful specimen of hydronephrosis.

Of late years it has come to my notice that cases of so-called cystitis cystica, where there are multiple minute cysts in the bladder, present a remarkable clinical picture when they are associated with renal infection, or with renal bleeding. In such cases it is difficult to determine with positiveness whether a similar cystic lesion of the pelvis and ureter is responsible for the copious bleeding, or whether the concomitant chronic nephritis, or a so-called essential hematuria, is to be held accountable. During the last three years I have practised decapsulation in two cases with remarkable success, and in a recent case, I not only performed decapsulation, but also curetted thoroughly the pelvis of the kidney through a nephrotomy opening, the sensation transmitted to the manipulating hand being sufficiently accurate to permit me to determine that the rough, gritty interior of the pelvis was converted into a smooth surface by the action of the spoon. My experience with a previous case leads me to believe, however, that although I was able to destroy the cysts in this manner, the decapsulation of the kidney and not this process of intrapelvic curettage was responsible for the immediate abatement and subsequent cessation of the hematuria, noted some four days after the operation.

*Operative Cystoscopy*—The operating cystoscope devised by me some years ago is of great importance both in intravesical and renal diagnosis as well as in therapy.

With the operating forceps introduced through the author's operating cystoscope, suspected lesions in the bladder in renal and vesical tuberculosis about the affected orifice may be removed and submitted for histological examination. Sections will show miliary tubercles in the inflammatory edematous lesions. In some cases this method suggested by me some seven years ago will be of value when tubercle bacilli are absent.

There are certain intractible ulcers of the bladder, particularly in females (solitary ulcers) that are covered by phosphatic encrustations and cause distressing symptoms for months or even years, and which can be effectually and rapidly cured and removed by excision with the author's

operative punch forceps through the operating cystoscope.

*Ureterocele, Multiple Ureteral and Renal Calculi, Hydro-Ureter*—Where a patient complains of vague lumbar pain, with negative or positive X-rays, the cystoscopist may find a so-called ureterocele in the bladder. In this condition one or the other ureter orifice is raised in a pyriform protuberance, in which the ureter will be seen to be hidden, as a contracted and impervious opening to each vermicular. Where, for any reason, the patient refuses operation, or because of the patient's condition, it is permissible and expedient to open up such a ureterocele with a scissor-like instrument introduced through the author's operating cystoscope. We were rewarded in one of our cases by the spontaneous passage of some eight calculi from the lower end of the corresponding ureter through the artificial opening, with relief of all symptoms.

*The Diagnosis of Carcinoma of the Bladder*—In the identification of bladder tumors, also, the operating cystoscope is of great value, in that by means of forceps introduced through it, portions of a suspected growth can be removed for microscopic examination. A section was found to contain suspicious carcinoma cells and proven at operation to arise from a papilloma that has undergone carcinomatous change.

*The Diagnosis of Lesions at the Neck of the Bladder and in the Posterior Urethra*—Although a knowledge of urethroscopy may at first sight seem inconsequential to the busy surgeon, the development of certain modern new instruments has so widened their sphere of visual application at the neck of the bladder and posterior urethra as to make possible not only the recognition of minimal unimportant surface lesions, such as are treated by the specialist in gonorrhea, but also more significant and deeper lesions that require surgical intervention, also those that are of neurogenic origin or dependent upon nerve lesions, those requiring suprapubic enucleation of a prostatic adenoma, and those necessitating quite a different mode of attack. Let me explain the two types of modern instruments to which I have given the name cysto-urethroscope and universal urethroscope, whose purpose is the obtainment of a clear view of the neck of the bladder and posterior urethra, either in a direction perpendicular to the shaft of the instrument, or looking in the direction of the shaft of the instrument whence a panoramic view or circumferential view of the sphincteric region from the peripheral side is obtained.

With the first of these instruments, the cysto-urethroscope, we can get a beautiful view of the intraurethral and intravesical intrusions produced by so-called prostatic hypertrophies, or, by looking down upon a middle lobe it juts into the bladder while the instrument rides on the top of the two lateral lobes in the urethra.

With the universal urethroscope, however, a different view is obtained, and the urethra can be viewed as the instrument is withdrawn.

Most serviceable is the universal urethroscope in differentiating between those important cases of so called contracture of the neck of the bladder or median bar, from prostatic hypertrophy, for the operative procedure will be quite different in these two conditions. And also will the instruments permit us to recognize those relaxed or paralytic sphincters that attend neurogenic lesions, that are accompanied by retention of urine and so frequently incorrectly diagnosed and even operated upon for enlarged prostate.

In the contracture cases the recognition of a distinct bar with the universal urethroscope the obstacle afforded by the obstruction at the neck of the bladder to the reintroduction of the urethroscope after it has once entered the urethra, will permit us to diagnose this lesion for the usual adenomatous intrusions of prostatic hypertrophy will be absent.

In paralytic cases where the sphincter is relaxed the floor of the sphincter will be seen to drop, it will pass out of view, and the instrument will have an abnormal degree of mobility in the posterior urethra, permitting the observer to swing it around in an abnormal fashion with the objective at the neck of the bladder or in the beginning of the posterior urethra.

In the cases of median bar or contracture of the neck of the bladder I have of recent years been employing in operation frequently followed by radical cure. This is based upon the results of my pathological studies on this condition. These latter demonstrated that the lesions of contracture of the neck of the bladder were either a diffuse fibrosis of the musculature of the internal sphincter or an inflammatory fibrosis, or a diffuse infiltration with adenoma or a combination of these lesions together with distinct adenoma.

**The Operation**—Through a suprapubic incision the bladder is opened, the contracted neck explored with the finger, the hypertrophied bar recognized and lifted up with the forceps and a fairly wide excision of the floor of the sphincter made with a sharp knife, a pyramid being excised at the sphincteric margin, the apex pointing down into the prostatic tissue, its distal extremity extending to the posterior border of the verumontanum. This is followed by forcible dilatation of the urethra with the fingers and sounds, the introduction of either a packing or a suture if there is bleeding and drainage of the bladder. Most remarkable cures have been obtained after this operation, even in cases of complete retention of urine of many months' duration.

## THE DELETERIOUS EFFECTS OF THE BROMIDE TREATMENT IN THE DISEASES OF THE NERVOUS SYSTEM \*

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**I**N this paper I wish to discuss the dramatic and disastrous symptoms which result from the use of the bromide salts in the treatment of nervous diseases. By these, I do not mean the rash, the cachexia, the feebleness, and the depression but the confusion, the restlessness, the violence, and the syndrome of symptoms resembling mania and paresis.

Bromide is a remedy so constantly used and so constantly abused that it will not be out of place first to call to your attention just what are its effects upon the nervous system.

"Bromide," according to Hare "affects the brain, cord and peripheral nervous system. It slows the development of thought, decreases the excitability and power of the motor cells of the brain and is a distinct depressant to the mental and intellectual portions of the cerebral cortex. Upon the cord it exerts a marked sedative effect so that reflex action is decreased and the motor pathways are depressed. Motion is maintained after sensation to pain and reflex action is lost. In this way damage is done without either patient or physician being alive to the fact. It also depresses the peripheral parts of the sensory nerves."

The results upon the peripheral nervous system are slight and infrequent as compared with those upon the cord and these in turn are neither so severe nor so frequent as are those upon the higher centers. The areas of the cortex are very greatly depressed as Bastedo has proven by his experiments. He found that in the case of a bromidized dog it was impossible to produce convulsions by the artificial stimulation of those cortical areas.

There are several conditions in the nervous system in which the bromide salts are used. It would take much more time than I have at my disposal this afternoon to consider each one. I propose therefore, to say a few words about some of the most frequent. I shall speak of the use of bromide in the following eight conditions:

- (1) Epilepsy
- (2) Toxic cases
- (3) Mental conditions
- (4) Traumatic and arterial conditions
- (5) Cases requiring long-continued usage of the drug
- (6) Alcoholic cases
- (7) Cases with an idiosyncrasy
- (8) Cardiac cases

(1) It has long been recognized that there are certain types of epilepsy in which the use of

bromide aggravates both the irritability and restlessness preceding the seizure as well as the depression following. Observers have reported cases of idiopathic epilepsy of long standing in which the administration of even moderate doses of bromide controlled the convulsions but substituted for them confusion, furor, violence, kleptomania, delusions, and homicidal tendencies. Weir Mitchell described such a case in 1887. The patient was an epileptic of many years' duration. Inasmuch as moderate doses had reduced the attacks, the attending physician reasoned that larger ones would stop them. As a result the bromides were increased until the patient was taking 150 grains a day. The patient became thoroughly intoxicated, the eyes partly closed, the sphincters relaxed, and the jaw dropped, emitting a constant drool of saliva. The major symptoms ceased, but the minor ones increased. The mind became profoundly affected so that the patient was hard to arouse, indifferent, and imbecile. Allen Starr reported another such case in 1896. His patient, under the administration of moderate doses of bromide, developed symptoms of violence and mania. In this instance a withdrawal of the drug produced a complete cessation of the maniacal phenomena with a return of the epileptic seizures.

I have seen the same condition. A young man, who had suffered from epileptic convulsions for many years required 60 grains a day of the bromide salts to arrest the attacks. If he continued this dosage over a long period of time he would become confused, irritable, unreasonable, and violent. On one occasion he attacked a fellow workman. So soon as the bromides were reduced his mental symptoms abated.

It is in keeping with these facts that Shanahan the Superintendent of the Craig Colony, makes this statement in regard to the use of bromide in the treatment of epilepsy, that "bromide, when properly given, with due attention to combating the evil effects, brings about material improvement in carefully selected cases of epilepsy."

It seems to be the epileptic cases of long standing which show an especial antagonism to the excessive use of the bromides. I believe that the irritability of temper displayed by these long-standing epileptics is as much, if not wholly, due to the constant and excessive use of bromides, as it is to the disease. In the administration of bromide in epilepsy, therefore, one should exercise caution, judgment, and moderation. A patient should never be saturated and the presence of unusual irritability, confusion, or violence should be the signal for a decrease in the dosage. At the present time when luminal has given such brilliant results in controlling the convulsions of epilepsy, it would seem that the administration of bromide in this disease would soon become obsolete.

(2) *Toxic Cases*—The toxic and exhaustion cases react unfavorably to the administration of

bromide. They are suffering from lowered resistance and impaired nutrition, therefore, what to an ordinary individual might be an average dose of bromide, becomes to one of these patients a dangerous dose. A careful investigation and an exhaustive history of these patients will prove that in nearly every instance the mental symptoms of confusion, delirium and mania, either made their appearance shortly after the administration of bromide, or were greatly aggravated by it. I remember one such patient where fatigue and insomnia were followed by sedatives, hypnotics, and finally steady and progressive doses of bromide. Shortly after the patient was said to be developing a psychosis with symptoms of confusion, irritability, restlessness, mania, and suicidal tendencies. In this connection, I might mention the post-operative cases. These have slightly lowered resistance, anorexia, weakness, and insomnia. To help them bromides are given, at first in small, later in large doses. At the end of a few days, maniacal symptoms appear. I can recall two such post-operative cases, seen in two of the best-known hospitals in New York. These patients had been unable to sleep. After the first night, when morphine had been given, resort was had to bromide. The dose had been gradually increased until maniacal symptoms appeared. It is not uncommon for physicians to administer forty grains of bromide four or five times in twenty-four hours and to continue this for several days. Such dosage invariably ends in symptoms of bromidism. A short time ago I saw a post-operative case that had been given 1,400 grains of bromide in one week. All of these patients developed the same type of symptoms—confusion, delirium, delusions, great restlessness, and violence. The onset of the maniacal symptoms appears to be sudden and as is always reported, "the symptoms became worse in spite of 60 grains of bromide given every night."

(3) *Mental Cases*—Mental cases are susceptible to bromide intoxication. This is due to the fact that these patients are suffering from a long drawn-out condition, that their nervous system is vulnerable, that their resistance is lowered, and that their cerebral circulation is poor. The anxiety, restlessness, and insomnia so frequent in mental conditions has required the constant administration of sedatives and, therefore, these patients are mildly toxic. Bromide is frequently given in these cases, at first in small and finally in large doses. As the symptoms fail to abate the dosage of the bromide is increased and as the symptoms augment is again increased. Finally a condition of bromidism is induced on top of the existing mental condition.

I remember not very long ago seeing a patient who was very confused, delusional, and restless. She had a foul breath and coated tongue, there was a tremor of the hands, the gait was ataxic, and the Romberg symptom was present. The





## CORNEAL LESIONS

By ARTHUR J BEDELL, M.D.,  
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THE subject of corneal injuries is so great that I can only group the causes, give some therapeutic suggestions, consider a few sequelæ, and finally offer a diagram for use in compensation courts

The most common injury is a foreign body, including cinders, bone chips, splinters of wood, emery, steel, coal, oyster shells, straw, beards of grain, gunpowder, molten lead, hot iron, lime, caterpillar hairs, rose thorns, chestnut burrs, glass and calcium carbide

Frequently the case is seen early, the eye washed with boric solution, cocainized and the offending material picked out. The eye is again washed with boric and bandaged until the cornea is smooth. Unfortunately, all are not so simple, and many an eye is lost and a great many more severely damaged because of improper care. When there is any question regarding the treatment, always take a smear to determine the etiological factors

Another type is made worse because the accompanying old dacryocystitis is not recognized. I urge the greatest care in such cases, using, as mentioned elsewhere, fresh ethylhydrocuprein solution. It is not necessary to cite examples of the fearful loss following a trivial corneal injury in the presence of this condition, for the dire results of serpiginous ulcers are too well known to need comment

Some years ago, a man was filling his car generator with acetylene gas. There was a fearful explosion, his head was cut, and his cornea infiltrated with the carbide mixture. When I saw him some days later there was a white incrustation of the superficial layers of the center of his cornea, vision being 20/40. This opacity has persisted

Gunpowder wounds of cornea may be treated as ordinary foreign bodies unless the specks are numerous or deeply embedded, when each spot should be touched with the galvano cautery. Oyster shells and certain kinds of coal are very productive of serious ulcers. In the country we have infected small ulcers following retention of minute particles of grain or the aspergillus implanted by grain on the broken epithelium. Thorough cleaning most often cures the condition. I have recently had two brothers, each having several 1 mm. gray infiltrations of the cornea, the result of dust blown in while threshing. They had been treated elsewhere for a long time, yet they cleared promptly after curetting each area. The aspergillus is most effectively destroyed by the local application of ten per cent solution of potassium iodid

Cases of molten metal, most often a splatter of lead, are not rare. A man of 28 was soldering a gasoline tank, after the explosion, when the debris was removed from his face, both corneas were found filled with minute particles of lead, which were removed. Another patient had a complete cast of his cornea, which was easily lifted off, with little underlying damage

While a boy of eighteen was mixing sulphur and zinc powders, in a high school laboratory, he touched the mixture with a gasoline torch. The right side of his face, the entire conjunctiva and the cornea were filled with a black powder. After removing the superficial eschar the cornea was found densely hazed, and despite the most careful treatment, only a small zone to the upper, outer part of the cornea was cleared

A foreign body may be so deeply imbedded that unless great care is exercised in its removal it will be forced into the anterior chamber. Sometimes an opening may be made above the body and a protecting spatula placed behind it. This I believe should only be done when absolutely necessary, for some may injure the lens in the operation

In contrast to these foreign bodies is the liquid group, of which the following are examples: Sulphuric, acetic, hydrochloric, nitric, and carbolic acids, ether, alcohol, chloroform, ethyl chloride, potash in the form of lye for soap making, xylol, gas bombs, contents of golf balls, road tar and steam, or hot oils

If the burn be slight, or if seen at once, nothing gives greater relief than 10 per cent watery solution picric acid. The burning sensation is almost immediately stopped, and healing most promptly started. Although sodium bicarbonate solution is found in every home, and can be more often immediately used, it is not as satisfactory. In the severe burn it is advisable to have the laity understand the protecting value of egg albumen, for surely some eyes have been saved by filling the conjunctival sac with the white of eggs. Several students in a chemical laboratory have spilled carbolic acid in their eyes, but quickly washing with alcohol has prevented serious damages

Mr. W., early in the spring two years ago, purchased a new automobile. In the first evening, he thought he would look over the battery, so he lighted a match and held it over the opening. The battery fluid exploded, burning both eyes, all lids and the face. The conjunctival surface was covered with a deep eschar, the burn extending deeply into both corneas. When cured there was some adhesion of the right upper lid and eyeball, and an irregular, faintly vascular opacity of the lower part of the cornea. Vision of the right eye 20/40, with correcting lens 20/30. Vision of the left eye 20/70, with correcting lens 20/20

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4, 1921

While playing in her back yard a child of three was thrown to the ground when the refrigerating plant of an adjoining brewery blew up. It was found that she had several burns on her face, and there was very slight irritation of the eyes. Three days later I was asked to see the case, and found the ammonia had burned both corneas which were densely clouded with a permanent interstitial blue gray opacity.

Associated as I am with a large hospital having an active general surgical service, either burns of the cornea are not uncommon. These usually show a moderate congestion of the eyeball and an abrasion of the cornea. Of course such cases happen most often when for some reason it is impossible to keep the eyes covered with the ordinary protective. By cleaning and bandaging recovery is complete in a short time. As you all know, one of the most widely advertised family drugs of to day is aspirin but perhaps you do not know that in its manufacture they use acetic anhydrid. During a single year I have seen twelve burns, some of the conjunctiva but most often corneal, following a splash of this compound in the eye. The lesion may be slight and quickly healed or it may be of intense severity ending in the destruction of the eye.

There is another class of injuries produced by direct contact, as those caused at birth by forceps. In one case, the blade was placed over the cornea and now sixteen years after the best vision is 6/200, the outcome of corneal ulcers. Penknife and scissors have cut many corneas. The last one I saw was a boy of seven who cut his right cornea with a penknife six weeks before he came to me. The iris was incarcerated in the wound which extended into the ciliary region inferiorly. For three days preceding his visit he had been unable to see with either eye. The left ciliary region was injected, iris irregular in outline and thickness with definite choroidal infiltrations. Although seen only once the diagnosis is without question true sympathetic ophthalmia. Hot curling irons have caused corneal burns always painful, but with bandage recovering quickly.

Erosions result from a baby's finger nail scratching the mother's eye or from rough cloth, straw, paper or twigs striking the open eye. The importance of abrasions because of the danger of recurring epithelial loss must not be overlooked for often the condition is most annoying. A woman of forty had an abrasion following a finger nail scratch. Three times the epithelium broke down and after she had had several teeth unnecessarily removed the cure was effected by formalin and long bandaging.

A severe blow even through the closed lids, may produce a serious corneal change, either rupture or a deep central opacity of interlacing lines, which may not entirely clear. Electric flashes sometimes start a true keratitis, which is

easy of diagnosis and responds to simple treatment.

The last group must include corneal change from damage to the surrounding parts. A gunshot wound of the facial nerve or fracture of the jaw may precede a corneal ulcer. Laceration of the face with resulting exposure of the cornea, has followed the kick of a horse or shrapnel tears. Iritis and even panophthalmitis often follow a penetrating corneal wound such as result from a hot pin flying nail or the loose end of a wire. Proper recognition and treatment is imperative.

The relation existing between constitutional or local eye disease previous to injury demands increasing thought, for it is to be feared that many industrial awards are unfair. For example, a patient has an old scar of his cornea, he says he got something in his eye while at work, the epithelial layer of an atheromatous opacity has broken down, giving him his symptoms. Certainly this is not the result of a foreign body, which he never saw, and no one ever removed. We all acknowledge such degeneration of scar tissue and yet some will forget it when they testify in court and so the patient with the corneal roughness of glaucoma may be said by the tyro to have a foreign body. You wonder why I say these evident things. It is because before one tribunal of this state multiplicity of dogmatic statement is valued, not sound facts based on knowledge of pathology and this is the place to draw out discussion.

A patient may have a latent tuberculosis or syphilis which is activated and localized by a trivial accident. A boy of twenty was playing with fellow workers in a printing office, a towel was flicked in such a way as to strike his right eye. Interstitial keratitis developed, first on the injured side and then on the other. His Wassermann proved the diagnosis of specific origin. He asks for compensation, claiming his condition the result of the accident. I am sure you agree the claim not a good one. And the same must hold for trachoma where during a quiescent period something strikes the eye, or, as in a recent case, the patient says an acetylene torch burned his eye and caused his condition, which when I saw him was an old trachoma, with the usual minute ulcers of pannus infiltration. With this fact some one was unversed enough to say the accident caused his trachoma.

The outcome of corneal injury must always be considered first in relation to age. A child with a small scar will almost always develop myopia, an aged person will show poorer resistance to infection. Second, the depth and extent of the injury, for the deeper the wound the denser the scar and the greater danger of infection of after bulging and secondary glaucoma. Evidently the more surface destroyed the less vision remains. Third, the condition of the surrounding parts such as facial paralysis or dacryocystitis. Fourth, the

constitutional condition as to infection or presence of general disease, such as lues or tuberculosis. Fifth, secondary astigmatism, nystagmus, strabismus. Sixth, occupation, for it is true that some require sharper vision than others to do their usual work. Seventh, and most important, treatment. After healing we can improve vision with lenses, with stenopeic slit, or by at times, in selected cases, tattooing or an iridectomy. Although you have all seen optical iridectomies done with central corneal opacity and normal other eye, where it would be impossible to get any visual improvement. By electrolysis, phototherapy, radium fibrolysin, thyroid, injections of air, mercury, etc., some claim to lessen corneal opacities.

The second reason for this paper is that there is no definite plan of determining easily and accurately for a court that a certain corneal scar either does or does not cause visual reduction or loss.

Presuming that the pupil of the average eye in daylight is from 4 to 4.5 mm in size, we lay our plan by making a circle 4 mm in diameter in the center of the cornea and sub-divide the periphery into four equal quadrants. We then have five spaces, central, inner-up, inner-down, outer-up and outer-down. To any judge or jurymen it will be possible to show that a dense opacity covering the center markedly impairs vision, and that depending upon the occupation the vision is less impaired inner lower and least in upper outer zone. By using this scheme, in addition to all of our other plans, it may be easier to establish honest claims and discredit the seeker after unjust award.

To summarize. It is our duty to treat corneal lesions with utmost care and most thorough knowledge, to the end that the scar will be less and vision greater. To do this each case must be studied by itself, and appropriate treatment given. That some of the newer methods of treatment are proven to be better than some of the older ones. That not only must the cause of injury be understood, but the whole condition of the patient must always be known, so that local conditions are made best for a rapid recovery, and finally, that the chart here shown will be of help before a court.

### Discussion

DR PERCY FRIDENBERG, New York, said many cases of corneal ulcer in industrial workers were originally foreign bodies or superficial erosions and became infected secondarily, often in the unskilful and uncleanly attempts at removal or treatment. The speaker lays stress on the importance of good illumination, good fixation of the globe, and good assistance, if necessary, in removing even superficial foreign bodies of the cornea. Dirty instruments, matches, toothpicks, or a soiled handkerchief, are generally used when

friends or fellow-workmen give their well-meant services. In actually infected ulcers, cresatin, applied in full strength, acts better than the traditionally recommended chemicals, such as carbolic acid or iodine. In progressive suppuration, even with beginning intra-ocular infection threatening panophthalmitis, the para-specific protein injections of Key are of the greatest value, using either diphtheria antitoxin or horse serum. In conclusion, marked lowering of central vision was often seen with rather diffuse corneal opacities and a haze which appeared far from dense.

## INTESTINAL TUBERCULOSIS.

By LAWRASON BROWN, M.D., and  
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### A. GENERAL

1 In 1920, 19,612 persons died in New York State from tuberculosis, of these 17,235 died from pulmonary tuberculosis. It has been estimated that about  $3\frac{1}{2}$  per cent of these had abdominal tuberculosis as well, namely, 603 persons, of whom 453 had intestinal tuberculosis and 150 peritoneal tuberculosis. (Dr Otto Eichel, New York State Board of Health, has kindly given us these figures.)

2 The most frequent complication of pulmonary tuberculosis is intestinal tuberculosis. It is found in from 50 to 80 per cent or more of all autopsies done on patients dead of pulmonary tuberculosis. If we assume 60 per cent of all patients dead of pulmonary tuberculosis have intestinal tuberculosis as well, then 10,351 of the above 17,235 patients had intestinal tuberculosis at death, of whom only 453, or 1 in 25 were diagnosed.

3 Six per cent of 89 consecutive cases at the Trudeau Sanatorium had definite or probable intestinal tuberculosis, but one-half of these were without intestinal symptoms. Dr Levy and Dr. Haff, working with Dr. Brayton at the Onondaga County Sanatorium, obtained quite similar results.

### B. DIAGNOSIS

4 The present status of the diagnosis of intestinal tuberculosis is comparable to that of pulmonary tuberculosis twenty-five years ago, when an early diagnosis aroused wonderment.

5 The heretofore "usual" symptoms of intestinal tuberculosis are those that occur in the more advanced stages of the disease, namely, persistent diarrhea, abdominal pain, tender points in the abdomen, with or without rigidity, in the absence of an acute abdominal condition.

6 Tubercle bacilli in the stools are of little diagnostic aid, as they occur in 85 per cent to 95

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4, 1921.

per cent of all patients with tubercle bacilli in the sputum

7 Suggestive symptoms of beginning intestinal tuberculosis include, among others, any digestive disturbances, marked constipation, failure of the pulmonary condition to improve, an irregular temperature with subnormal fluctuations and possible decrease of pulmonary symptoms alternating constipation and diarrhea, marked nervousness and improvement in pulmonary with the appearance or increase of abdominal symptoms

8 As the symptoms and abdominal examination are so often negative, we must turn to the study of the barium meal and enemata by X-rays to exclude or to diagnose intestinal tuberculosis

9 Failure of the cecum or of that part of the colon from the cecum to the middle of the transverse to retain barium, or the presence of spasm or filling defects (irregular contour—lack of haustrations) or of confirmed segmentation with or without dilatation of some coils of the small bowel, ileal stasis gastric retention are the essential points for diagnosis when the intestine is studied at the sixth, seventh, eighth and ninth hours and again at the twenty-fourth hour. General hypermotility, with complete or nearly complete emptying of the colon in twenty-four hours, usually occurs in more advanced cases

10 The barium enema usually confirms the fact that the cecum or other portions of the colon may fail to receive or to retain the barium

11 These generalizations are based upon a study of 779 cases—of whom 248 were positive, 45 questionable, and 468 negative. Of the positive cases 35 came to operation and all had tuberculous colitis. 3 came to autopsy and all had tuberculous colitis. Four of the questionable cases were operated upon and had tuberculous colitis. Fifteen of the cases negative for tuberculous colitis were operated upon and 10 had chronic appendicitis, 1 ovarian cyst, 1 tuberculous appendicitis, 3 tuberculous enteritis, but no tuberculous colitis

### C TREATMENT

12 *a Medical*—When diarrhea is absent, it is of little avail. Drop doses of creosote in a capsule, with one quarter grain iodoform may be tried after meals. Salol and Tully powder, 25 grains of each, every four hours may have to be resorted to in terminal cases

13 *b Surgical*—The X-ray may not reveal the whole extent of the involvement. Patients with advanced pulmonary tuberculosis do not do well and should not be operated upon, nor should those with advanced intestinal lesions, except to relieve symptoms. In early localized cases, excision is the operation of choice, but it may be necessary to short circuit, which in advanced cases may make the condition and symptoms worse

14 *c Heliotherapy*—Treatment by sunlight or the mercury quartz lamp often relieves the symptoms in a striking way and produces both clinical and radiological changes that are remarkable, but inasmuch as a few cases recover without any treatment judgment of the value of this treatment is difficult and these results may not be attributed entirely to the ultraviolet ray. These methods should be used in all cases whether or not subjected to operation

### SOME SPECIAL EDUCATIONAL NEEDS FOR CHILDREN \*

By SANGER BROWN, 2d, M.D.  
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THE physical ills and defects of school children are objects of attention of teachers, parents and family physicians throughout the development period of early life. It goes without saying that a child without a sound and healthy body is greatly handicapped, and that neglect of physical health is unpardonable. Careful as supervision has been, school children still sometimes fail to get all the medical attention they require. But they receive much more than they probably received in former years.

When we turn to school children's special psychological needs as contrasted with their physical, we find that handicaps also exist, although they are less generally recognized. Children do not show faulty development in physique alone. A fair proportion of them do not develop as well as they should in mental spheres, that is, some of them are temperamentally unstable, some are unduly sensitive or nervous, some are slow with their studies, and cannot keep up with their class. These are handicaps in the mental sphere. The school is organized for the average child and the children who are not average may have a difficult time.

Intellectual and nervous handicaps are not always as readily appreciated as are physical defects. The child possessing the former is sometimes regarded as obstinate or disobedient. When he is in such a state he can not always control his temper or conduct. Besides being disobedient he is likely to become delinquent as well. Minor troubles lead to greater ones, and a certain proportion of difficulties with school children is caused by failure to take these facts into account.

In the public schools of New York there are registered over 800,000 children, counting the parochial and private schools, the number probably reaches 1,000,000. For the children in the public school system certain medical provisions have been made. These provisions are carried out by the Bureau of Child Welfare, a division of the City Board of Health.

\* Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 5, 1921.

Physicians are appointed by the Board of Health to examine school children in various districts. A system of record is kept, in which each child is given a card, and defects recorded. As a result of the findings of the physician, various special classes are formed. For children who show malnutrition, some schools have open air classes and there are treated pretubercular children and those with anemia. There are special classes for the blind. There are sight conservation classes, and eye clinics, where children requiring it can be examined and treated and where glasses are prescribed. There are classes for deaf children, and there is a special school for the deaf, from which children graduate and are secured positions. The cardiac cases are grouped in classes. There are classes for crippled children, and transportation to the school is afforded for some of them. There are several dental clinics where children are examined and treated.

The above facilities for diagnosis and treatment are conducted by the Board of Health for physical defects only. This work is not done under the direction of the Educational Department, although the closest association exists between these two agencies.

For mental disturbances and defects, as contrasted with physical, present provisions seem much less adequate. Every year there are about 50,000 truants reported to the Bureau of Attendance. There are about 50,000 children in the schools who are not up to the grade which they should be for their age. Between 20,000 and 25,000 are feeble-minded. Of these there are about 5,000 in special classes for feeble-minded. From many of the large schools very few feeble-minded are referred to the department which looks after this work, and some refer nearly 5 per cent for examination. Over 7,000 children are taken yearly to the children's court on charges of disobedience, truancy, thieving and vagrancy.

There are three truant schools under the Board of Education, which afford accommodation for over 400 children. Children are committed to these schools and are kept in residence for varying periods. In them the regular academic work is carried out, and the boys, besides, have manual training.

There are three schools which are called probationary schools. These have not been in existence for a long period. Children are sent to these probationary schools for observation, or at least, as a temporary expedient. They are children who, for various reasons, cannot get along in the regular classes.

Connected with the Bureau of Attendance there are 300 officers known as truant officers or attendance officers. Their duty is to keep truant children in school. They work in conjunction with police officers, teachers, and with the author-

ities of the Children's Court, and truant schools. Children are paroled to them, and obliged to report to them at intervals. They know where the children are to be found when they play truant, know the gangs in their district, and are fairly familiar with the families of the children. Children sent to truant schools do not, as a rule, receive as complete a study of their case as is desirable. It is true that the whole situation is often reviewed in the Children's Court. This review is to establish the facts of the case, but treatment is not possible there. To thoroughly understand such a boy, a complete study of his home life, early development and symptoms are necessary.

After several attempts to keep children in school and on probation, failure results in their being committed to the truant school. The duties of the truant officers or probationary officers are necessarily to a great extent custodial. There are facilities in the probationary school and in the ungraded classes, for manual and industrial training, but these are not always as elaborate or complete as those in charge would like to have them.

It is of interest to attempt to determine to what clinical types these children belong to who do not get along in school. Probably between 90 and 95 per cent of children in school get along in a fairly satisfactory way, make progress in their studies and get into comparatively few difficulties. It is a small group—not more than 5 or 10 per cent—who do not get along. If it is 5 per cent it would make nearly 50,000 children in New York. Even this percentage is sufficient to cause concern to teachers and to disorganize to some extent the workings of the school system.

A number of types are represented in a recent examination\* at Public School 37, a probationary school. Of these 120 cases, 28 were found to be feeble-minded. This group, of course, is quite well known, and the reasons for their delinquency understood. Thirty cases were nervous children, that is they suffered from restlessness, emotional instability, ties, stammering, sleep-walking or other neurotic symptoms. Such children, of course, can not get along in large classes. Twenty-one were not neurotic, but appeared to be temperamentally different from the average child. Possibly we would consider such symptoms under the term "psychopathic" if seen in adults, but this term does not seem warranted in respect to children, since such conditions are often transitory. There were 15 cases not defective, but very dull in academic work, and could not make progress.

There was a large number, consisting of 26 cases who appeared to be almost entirely victims

\* The complete data of this summary is included in a report to the National Committee of Mental Hygiene.

of circumstances. It is true, that environment affects all cases, but in these instances, while the children seemed to be normal, and were not defective or neurotic, they had come from such bad homes or had lived part of their lives in institutions or changed from school to school so often that they had become unfitted for the regular classes.

These are some of the general types which one sees. None of these children are making good in school. Their failure consists mainly of two things. They do not make progress with their studies, they do not advance with their classes and so from a purely academic standpoint they are failures. Their failure in other directions is often more serious. They become delinquent, they are frequently taken to the Children's Court, they learn to lie and steal and some of them become vagrants. In other words they do not receive the kind of social education and development which is necessary for them if they are to take their places in the world later.

For the solution of these questions two main objects should be considered. The first consists of measures directed toward the *prevention* of development of school difficulties in children wherever possible. The second consists of treatment and management of such conditions when they arise. At times when we understand causes of symptoms, such as nervousness or instability, or disorders of conduct, we are able to remedy them by removing the cause. In other cases the conditions seems to be a developmental phase during which the child needs supervision over a period of time.

In the direction of prevention an important measure lying toward a change in the school system has been suggested. As matters now stand the school curriculum is planned for the average child. The child must be able to make regular and normal progress from year to year or he is left behind. The curriculum does not take into consideration variations in intelligence, of failure of children to acquire knowledge, for reasons other than intellectual.

Because of the rigidity of the curriculum changes have been suggested and in some instances put into effect. It has been recommended particularly by psychological examiners that children be graded according to their intellectual capacities. Children who are able to advance rapidly should be promoted, so that a young child might be doing preparatory work for high school, and those who learn very slowly would be given special training and opportunity.

This arrangement seems only reasonable and

offers great advantages. In fact it would probably solve the problem of conduct disorders and disturbances in the school to a very considerable extent. Children develop conduct disorders because they are unhappy, and one reason for their unhappiness is that they are asked to do something in their studies which they are not intellectually capable of doing. Teachers do not always understand this situation and of course are ambitious for their pupils to make progress.

Change in the school curriculum, therefore, making it more flexible in some respects, and in enriching it in others, will probably act as a valuable preventive means of the difficulties under discussion.

What therapeutic measures in addition to the above preventive ones should be available when these maladjustments have become firmly established? It is probable that in spite of all possible preventive measures the needs of all cases can not be met at once. Children are temperamentally unstable for reasons which are sometimes apparent and again for reasons which cannot be determined, certainly not always because of any difficulty in school. Again some are nervously unstable because of nutritional disorders or physical defects. With still others, faulty environment and improper home training is of most importance. Modification of the school curriculum will not entirely remedy conditions of this kind, moreover, if provisions were made at once to modify the curriculum and to enrich it it would doubtless be some years before such changes could effectively be brought about.

It seems probable then that we will continue to have difficult children and those showing conduct disorders for whom provisions, other than those already suggested should be made. What should these provisions be? The first step is one of establishing a diagnosis. Every child reported by the teacher as not getting along satisfactorily should have a physical examination and mental examination including a psychological test and a study of social and environmental conditions. By this means a diagnosis could be arrived at.

A diagnosis should be made in such a case, determining whether the child is mentally defective, neurotic, poorly nourished with physical defects, temperamentally unstable, etc. When a diagnosis is established, proper facilities for treatment and remedy are, of course, necessary.

How is the diagnosis to be made, and how are the recommendations for treatment to be carried out? In regard to diagnosis one plan would be to have a central clinic to be used as a clearing

house, where these children can be examined. Case records would be kept on file, and recommendations made. The personnel would consist of examining physicians and psychologists, and in order to keep in touch with the schools and with the principals, and also to gather the necessary personal data of the child, social workers would be needed. This clinic should naturally be associated with, and a part of the department, now doing such work for the children sent to ungraded classes.

What would be the recommendations for treatment? Besides the obvious remedying of physical defects, malnutrition, treatment of nervous symptoms and general physical remedies, other provisions are necessary. For this, it would, of course be best to make full use of facilities already available.

It is probable that the adjustment of the curriculum to the child would be all that is necessary in certain cases. For others that need special attention or who have some temperamental instability, or nervousness, transient possibly, but none the less requiring treatment, *special classes* are desirable in the regular schools. The classes, of course should be distinct from those for the mental defectives.

Some nervous or unstable children cannot get along in a large class. The discipline irritates them, and they irritate others. However, if small classes can be formed where much liberty is possible, and where the teacher has sufficient time to give attention to each child separately, the advantages are very great.

There are objections to sending a mildly nervous child to a separate school. An undesirable distinction is thereby made, and it is not wise to make more distinctions between children in school than is absolutely necessary. With some children, however, separate schools seem advisable.

In a large school certain cases with marked and established symptoms are likely to drift from bad to worse. If a radical improvement in their mental habits and in the development of their character is to be established, it is to be accomplished by giving them special attention. Their academic educational needs must be superseded, for a time, by a special training in social directions.

Minor or palliative measures are not of lasting benefit with these cases. They require a certain kind of re-education in regard to their conduct. For them, the probationary schools would probably be found to offer the greatest advantages. Many of these children are not in a condition to continue academic work. Many would get

along better in a comparatively small school and in a small class. Still others need individual attention, and the advantages of a teacher who understands their problems and can devote some time to them.

This special use of the probationary school should, then, be of great educational value to some children. The teachers in such schools should have the most thorough possible knowledge of the psychological problems with which they have to deal. There are, of course, few teachers at present who have had this special training, and courses should be available for them. Such training can not be acquired in a short time, and practical experience with the social, psychological and psychiatric questions involved is a necessary adjunct to their academic training. The success of the school will, of course, depend on the teachers to a very great extent.

The same may be said of the truant schools. Children sent there are of the more serious types, and they require social education over a period of many months. Such education is much more necessary for them than acquiring academic knowledge.

The teacher coming in contact with these children will have a very important influence on the success of the plan. As much seems to depend upon the teachers as upon the facilities which they have. They will all need experience and training comparable to that which a nurse requires who looks after physical illnesses.

What results are to be expected from such measures? Of course, no one can say. It seems probable, however, that many of the psychological difficulties of school children can be avoided by these special arrangements. We have not understood these difficulties very well until within recent years. However, within the past fifteen or twenty years many facts have been learned, and we probably are not using all the knowledge that is at our disposal. We therefore do not know what results to expect. Possibly much more would be accomplished than many of us anticipate. One of the important questions would be that of scientific character training for the young. This might be a tedious process in some instances, and require months—or even years, but if it were eventually successful it would be well worth the time spent.

If such measures were even moderately successful, the results would not only be felt in the schools, but they would be felt in the community. If handicaps are to be recognized, and either corrected during childhood, or equalized in some way, the best possible place to begin is in the schools.

SPINAL PUNCTURE IN DIAGNOSIS  
AND TREATMENT\*By WILLIAM E. YOULAND, Jr. M.D.  
NEW YORK CITY

**A**N attempt to justify the presentation of this subject recalls the fact that spinal puncture has been a routine diagnostic procedure since 1896 and suggests the difficulty of interesting you other than in its special phases. Since I have no personal contributions to offer it seems best to review those phases that have withstood the test of time and which because of their fundamental nature furnish tangible evidence in diagnosis. The newer knowledge of immunity teaches that successful serum therapy depends on an early diagnosis and thus before the classical symptoms have developed. Once the disease process is established heroic measures are necessary and are more often accompanied by a fatal outcome. Thus tetanus antitoxin injected intraspinally in the rabbit simultaneously with several lethal doses of tetanus toxin affords complete protection. If the injection of antitoxin is delayed the amount required to neutralize the same dose of toxin is far greater until a point is reached four or five days after the injection of toxin when no amount of serum can save the animal. The same principle applies to all disease processes of a bacterial nature for which specific therapy is available and serves to illustrate the importance of an early diagnosis. These considerations may justify my bringing such an old subject before you.

Puncture of the sub arachnoid space was first recorded by Corning who in 1855 injected experimentally a solution of cocaine into the spine of a dog. He later repented the experiment on a man ill with spinal weakness. Quincke in 1891 simplified the procedure by using a smaller needle and established the lumbar region as the site of least danger. He recognized and urged the use of spinal puncture in diagnosis and in treatment by drainage of increased intracranial pressure.

The technic of spinal puncture is relatively very simple. But few possess the required skill to perform it satisfactorily due in a measure to the special nature of the region involved and because of lack of appreciation of its very great value in an increasing group of diseases. The procedure is not wholly devoid of danger. Yet in recent years extensive use of lumbar puncture has come into vogue, its practical value being established in the epidemic of poliomyelitis of 1916 and recently in the epidemics of meningococcus meningitis. Many have had opportunities of doing repeated punctures without noting ill effects. In some instances it may be regarded a justifiable office procedure.

The position of the patient is the most important factor. Two are usually advocated. In one the patient sits upright in a chair or on the edge of a bed bending over as far as possible to separate the spinous processes. The second is the recumbent position in which the patient lies on his side on the bed or some hard support. The latter position is to be preferred since many patients are too ill to sit up the patient can be handled to better advantage by the assistant, the landmarks can be more easily established and the lowered position of the head may aid in preventing the development of untoward effects. The bed should be hard and smooth. Sagging of the center of the bed is a serious obstacle. With children a kitchen table offers the best support. The patient is placed on his side and the assistant puts one arm around the neck and the second beneath the knees. In this way the back may be bowed with least inconvenience to the patient while the body of the assistant prevents the patient from moving. The secret of success depends on prevention of lateral bowing of the spine. It is surprising how mobile the spinal column may be especially with poor support. Lack of insistence on this point has been responsible for many failures to get into the canal on the first attempt.

The needle is introduced in the third or fourth or occasionally the second lumbar interspace in the midline at the level of the lower surface of the spinous process above. The needle may be pushed straight in if the back is sufficiently bowed. Occasionally the needle may be directed slightly upward. The midline is to be preferred since it offers the best landmark and the firm intraspinal ligament steadies the needle. It is important to become familiar with the characteristic tug and give of the dura as the needle passes through. As soon as the dura gives the point of the needle is in the sub arachnoid space. The hand should be steadied against the back while introducing the needle to prevent sudden movement and possible injury of the veins. It is essential to adopt a single procedure and to become thoroughly familiar with it.

The type of needle used is important. One with a close fitting stylet should be selected. The smaller types are better since their use is less painful, an important fact if secondary punctures are necessary. The tendency of the smaller needle to become plugged when the fluid is very thick is not great and may be offset by having a larger needle in reserve. It is well to insist on a Luer hub since this is a common standard for syringes and connections. To complete the equipment one should have an ordinary ten or twenty cubic centimeter syringe about ten inches of small rubber tubing and a glass coupling with one end ground to fit the needle. By using a single type of needle one becomes better acquainted with the



rate of flow of the fluid under different conditions and can better estimate any increase in pressure

The collection of the fluid should always be made with precautions for asepsis, since the bacterial examination is often decisive in arriving at a diagnosis. Three or more sterile tubes should be used since with the most careful technic a small amount of blood may enter the fluid. This will be washed into the first tube the fluid in the remaining tubes being free. On the other hand if hemorrhage is present the blood and spinal fluid will be equally mixed in all the tubes. The amount of fluid to be withdrawn depends on the condition suspected and the purpose of the puncture. In the normal individual or in those who have no disturbance of the central nervous system seldom can more than five to ten cubic centimeters of fluid be obtained. In the greater number of disturbances of the brain or cord there is an increase of fluid, from twenty to fifty or even one hundred cubic centimeters often being obtained. Since drainage of the excess fluid is a therapeutic procedure it is well to allow the fluid to run until only an occasional drop appears. Increase in the flow of fluid may be obscured by partial plugging of the needle or failure to get the point of the needle free in the space. Under these conditions the amount of fluid obtained by draining completely may be a valuable index of an increase and of diagnostic significance. Many cases have been "drained" without serious effect. A notable exception is the presence of an intracranial tumor when the slightest disturbance of pressure may cause sudden death. If the fluid is allowed to run out slowly, as when a small needle is used, this danger is minimized. Otherwise there is little danger if the patient is kept in bed for a few hours or longer. When injection of serum is to be made five to ten cubic centimeters more of fluid should be withdrawn than the amount of serum to be injected.

Failure to obtain fluid the so called "dry tap," may usually be regarded as failure to enter the canal. Occasionally the needle may be blocked and can not be cleared with the stylet. When a suppurative meningitis with a thick exudate is present there may be blocking between the ventricles and the cord, or the exudate may form a solid envelope of the cord, practically filling the sub-arachnoid space. This has been observed several times this winter at autopsies in cases of pneumococcus and meningococcus meningitis. A simple test for determining if the needle is in the space consists in running in slowly warmed salt solution, using gravity only.

The most important of untoward effects of lumbar puncture is the shock or rarely death that has been reported in cases of cerebral tumor. This danger is now widely recognized and may

in part be combated by careful observation of the blood pressure and by removing only a small quantity of fluid and slowly at first. Other effects include chiefly headache, occasionally vomiting and rarely prostration. Cases have been reported in which the disturbance did not come on until five days after the puncture. The amount of fluid removed does not always account for these disturbances, the removal of as little as five cc of fluid being followed by headache. In other individuals the withdrawal of one hundred cubic centimeters of fluid brings great relief. These disturbances seem to occur more frequently in those who have no cerebral disturbance. It is always advisable to keep the patient in bed for some hours after the puncture.

A knowledge of the nature of the normal spinal fluid is essential to the understanding of the pathological changes and their significance. Spinal fluid has been described as water with traces of protein salts and sugar. It possesses nearly all of the constituents of blood plasma, some in the same proportion. Serum globulin is present in the spinal fluid in 0.2 to 0.3 per cent while serum albumin is present only in minute traces. Sugar and urea are present in the same proportions as in the blood plasma. Less diagnostic value is attached to other constituents of the fluid. In addition there are a few cells normally present. These are chiefly lymphocytes and vary from two to eight or ten per cubic millimeter.

Accepting the definition of normal spinal fluid just given it follows that pathological spinal fluid may be defined as disturbances or changes in the contents of normal fluid with or without the presence of foreign elements. Normal fluid is perfectly clear and can not be distinguished from water by the naked eye. On this basis pathological fluids may be divided into two groups, namely, clear pathological fluids and cloudy or turbid fluids. These two broad types of fluids correspond to two dissimilar groups of diseases of the central nervous system. The frankly turbid or purulent fluids are obtained from the suppurative meningitides, the inciting agents of which include many of the well known pathogenic bacteria. Actually these fluids may vary from a faintly turbid appearance to frankly sero-fibrinous or sero-purulent exudates. The faintly turbid fluids are met with very early in the disease and tend soon to assume a purulent character.

The clear pathological fluids are characterized by changes which are detectable only under the microscope and by chemical methods. The group of diseases in which they are found is characterized by the histological picture of round cell or lymphocytic infiltration and by absence of suppurative changes. It includes tuberculous men-

ingitis, poliomyelitis and epidemic encephalitis and syphilis of the nervous system

When one is dealing with a clear pathological fluid the following characteristics in part or wholly are tested for

- (1) Increase in globulin
- (2) Decrease or absence of sugar
- (3) Increase in cells noting the predominating type
- (4) The complement-fixation reaction for syphilis
- (5) The colloidal gold curve for syphilis or meningitis
- (6) The presence of acid-fast bacteria
- (7) Production of tuberculous lesions on animal inoculation

Thus it is seen that only two specifically diagnostic facts are obtained the production of tuberculous in the guinea pig and less so a positive complement fixation reaction for syphilis or the so-called paretic gold curve. The remaining pathological changes are common to different diseases. Of greatest significance is an increase in globulin which is remotely analogous to exudation of serum in the more common suppurative processes and its presence in spinal fluid is strongly suggestive of an inflammatory involvement of the central nervous system. The better known tests for increase of globulin include the butyric acid method of Noguchi, the ammonium sulphate ring test of Ross and Jones and Prandy's carbolic test. A discussion of the merits of the different tests is not indicated here. While the determination of an increase in globulin is not an exact chemical procedure clinical experience has shown that the so-called globulin tests have a great diagnostic value.

As stated the sugar content of spinal fluid is the same as that of the blood plasma. Sugar is readily diffusible although the exact mechanism of its entrance into the spinal fluid is not known. The same may be said of disturbances in its content in pathological fluids. Empirically it has been found that sugar is decreased or absent in over fifty per cent of fluids from cases of tuberculous meningitis. It is not affected as determined by qualitative tests in poliomyelitis, epidemic encephalitis and cerebro spinal syphilis. It is doubtful if exact quantitative determinations of the sugar content of pathological fluids will give evidence of diagnostic value since sugar is not an inflammatory product and the conditions governing the disease process are not uniform or stable.

Increase in the number of cells of the lymphocyte type is of the greatest significance in pathological fluids and as stated occurs in those diseases of the nervous system characterized by a

lymphocytic reaction. Occasionally, in the earliest stages a polynuclear pleocytosis may be met with which soon gives way to a lymphocytosis. The importance of this cell picture is shown by contrast with that of purulent fluids in which polymorphonuclear leucocytes are present in 98 to 100 per cent. Great care should be observed in doing the cell count since in the very early and in the late stages there may be only a slight increase. A count of over ten cells per cubic millimeter should be regarded of pathological significance and indicative of further investigation of the nervous system.

There is no exact basis of information regarding the complement fixation reaction in syphilis. Its value is purely clinical and may be accepted as fairly definitely established. The value of the colloidal gold reaction is held by some to be greater than that of the Wassermann reaction. Many of the reports of its use are conflicting and it must still be regarded as in the trial stage. The search for acid-fast bacteria, namely the tubercle bacillus and its confirmation by animal inoculation need no discussion. Its presence is usually accompanied by the development of a web like film clot which greatly facilitates their discovery. In absence of a clot high-speed centrifugalization for one hour and examination of the cellular sediment will frequently reveal their presence. Patience and labor here bring their greatest reward and the finding of the tubercle bacillus should obtain in practically every fluid from cases of tuberculous meningitis.

A consideration of the nature of the pathological fluids obtained from suppurative meningitides will indicate the method of examination to be followed. As stated they are essentially inflammatory exudates diluted with spinal fluid. The exudative elements are fibrin serum albumin including globulin and polymorphonuclear leucocytes as are found in all suppurative processes. In addition we have the inciting agent or bacterium and spinal fluid. The cell count usually mounts into the thousands. Its determination has no diagnostic nor prognostic significance. The same applies to the determination of the protein content. Only the identification of the inciting bacterium is of diagnostic importance and this is very great. Differentiation between the meningococcus and the pneumococcus or the streptococcus will determine whether serum is to be given and the type of serum indicated. Such identification requires more consideration than usually recorded and should be done only by those trained in the fundamentals of bacteriology. The morphological evidence should be confirmed by culture.

The laboratory findings in pathological fluids have thus been briefly sketched with the hope of presenting a simple and practical viewpoint and

indications for the utilizing and interpretation of various tests. It must be remembered that there is little of the absolute or specific in such investigations. Rather it is the picture obtained from several tests combined with the clinical picture of the disease that renders laboratory examinations of greatest value. It follows that no one finding except the identification of the inciting agent should be accepted as diagnostic and not infrequently more than one puncture may be required to establish the diagnosis.

The treatment of epidemic meningitis is thoroughly established. It is necessary only to mention the importance of making an early diagnosis and immediate injection of serum since every day's delay tends to prolong the course and is accompanied by a higher mortality. Two injections daily may be required in the first week. The use of serum should be continued until the temperature has been normal for three to four days as there is a marked tendency to relapse. The serum should be warmed and always administered by gravity. Experience in the recent war supports the hematogenous route of infection of the meninges by the meningococcus, many cases developing only a bacteriemia. It is the rule now in severely toxic cases to give intravenous as well as intraspinal injections of serum.

Next in importance is the intraspinal treatment of syphilis of the central nervous system. This is still in its initial stage but suggests a form of therapy that must be completely investigated. No one of the various methods advocated has become fully established. But in using this form of treatment the familiar principle of early diagnosis must be especially observed since in these cases often by the time the condition has advanced to call for alleviation of symptoms the destructive changes are beyond control of remedial agents. It is conceivable that the uncertain results of investigations of this method of therapy may be due to the fact that they have been tested chiefly in the advanced stages of general paresis and tabes when the disease process has ceased and the destructive changes are complete, and that these same methods may have the greatest value if applied in the earliest stages before destruction has begun. The use of the cell count and globulin determination as an index of the benefit of treatment may lead to error since both may fluctuate in the untreated individual.

Recently the use of tetanus antitoxin intraspinally has been advanced based chiefly on experimental evidence. The intraspinal dose of tetanus antitoxin is 3,000 to 5,000 units diluted with an equal amount of warmed saline while 10,000 to 20,000 units are given intravenously. Both should be given twice daily until the condition is under control.

## VITAMINES AND NUTRITION †

By M. J. LEWIS, M.D., and H. E. DUBIN, Ph.D.,  
NEW YORK CITY

THE number of investigations and investigators of vitamins seems to be increasing in geometric proportion, yet the sum total of our knowledge accumulates but little. The reason for this interest may be found in the unusual though well-deserved concern aroused by the new light thrown on the all-important problem of nutrition. Research has been stimulated as never before and it is to be feared that workers have plunged ahead with great enthusiasm for the broader aspects of the subject and with but insufficient attention to the finer technical points. There is urgent need for more intensive and less extensive research if we are to arrive at a final understanding of the nature of the vitamins and their rôle in nutrition. A brief survey of the facts and a consideration of the present status of the subject may not be out of place.

The earlier conception was that a diet containing carbohydrates, proteins, fats, and inorganic salts sufficed for adequate nutrition. Thanks to the pioneer work of Eijkman, Funk, Hopkins, Osborne, Mendel, McCollum, Hess and others, it has been proven that no combination, lacking the factors to which Funk assigned the name "vitamines" is capable of supporting growth. Incidentally, Funk chose the name "vitamine" because of his belief in the basic character of these factors and because of the popular appeal that such a name would possess. It is consequently useless to quibble as to the nomenclature or as to whether "vitamine" should be spelled with or without an "e." That the choice of the name was fortunate, is amply attested by a perusal of the literature.

Regarding the question of priority, it is not so easy to make a definite statement, there is glory enough for all. Hopkins, in a recent lecture, very modestly deploras the fact that he is being credited with much for which he disclaims responsibility, nevertheless his work has blazed new trails. Although Funk himself did most of his work with the water-soluble antineuritic vitamin B, starting in 1910, yet in his book, "The Vitamines," written in 1913, he classified the vitamins substantially as they are known today. They are:

1 Antirachitic vitamin—vitamin A, found in certain fats, oils and in the leafy parts of some vegetables.

2 Antiberiberi vitamin—vitamin B, occurring in a variety of grains, vegetables and animal products, and in yeast.

3 Antiscorbutic vitamin—vitamin C, distributed in certain fruits and vegetables.

\* Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn, May 5, 1921.  
† From the Research Laboratory of H. A. Metz.

In addition, he suggested the possibility of the existence of other vitamins. Although some doubt has been cast on the identity of the antirachitic vitamin with fat soluble A, and of the antiberiberi vitamin with water soluble B, the above classification holds good. Funk established the existence of the antiberiberi vitamin, or vitamin B, while somewhat later Osborne and Mendel, almost simultaneously with McCollum, proved the presence of antirachitic vitamin A in fats, such as butter and cod liver oil, and in vegetables such as spinach.

Evidence continues to accumulate demonstrating the vital importance of these chemically unknown substances for satisfactory maintenance and growth. Funk, Harden and Zilva, Drummond and others have shown that growth proceeds best when the diet includes all of the three known vitamins although it has been established that the antiberiberi vitamin is the most important for growth *per se*. For example the numerous experiments of Mellanby, McCollum, Hess, Drummond and others show that in the absence of antiberiberi vitamin proper growth does not take place even though the antirachitic and antiscorbutic vitamins be present. On the other hand Hess showed that scurvy may develop accompanied by an increase in weight. Similarly Mellanby demonstrated that rickets develops most easily in the fastest growing dogs. Both scurvy and rickets could be cured by the administration of the respective vitamins but no growth would occur unless antiberiberi vitamin were present in the diet.

Another important point should not be overlooked. It is not enough merely to provide for the vitamin content of the diet, it is also necessary that there be a suitable relationship between the other dietary constituents. For instance, Funk and Dubin have recently found that rats on a high protein diet require less of the antiberiberi vitamin B for growth than do those on a high carbohydrate or fat diet. In other words although the qualitative food requirements of a well-balanced diet have been fairly well demonstrated further work is necessary to establish the quantitative relationship between the dietary components necessary for adequate nutrition.

It has been shown that of the three known vitamins, the antiberiberi type is the most stable. The antirachitic and antiscorbutic vitamins are quite sensitive to heat and to oxidation so that these points must be considered in any discussion as to adequacy of a certain dietary. In this connection the question may well be asked "Does the average daily diet provide sufficient vitamins?" In general the answer is in the affirmative, but it is not impossible that certain factors may weigh down the balance on the opposite side. For instance Hart, Steenbock and Ellis Hess Dutcher and many others have shown that the antiscorbutic potency of milk is affected by such factors as pasteurization source season and the diet of the cow, pasteurization can hardly be

eliminated since there are still enough tubercular cows to make this procedure imperative. To remedy this, some other source of antiscorbutic vitamin should be used, in fact Hess advocates the use of antiscorbutics in infant feeding as early as at the end of the first month.

Again, fruits and vegetables are canned or dried, during which process the vitamins are largely destroyed.

Grain is refined to such an extent as to provide us with a beautiful white bread, but with the original vitamins lacking.

The ageing of foodstuffs reduces their vitamin content, fresh picked carrots contain much more vitamin than old carrots. It is quite true that if foodstuffs are very carefully prepared, they retain their vitamins unimpaired, but at present we cannot say just what degree of care is exercised by food manufacturers and packers with a view to preserving the original vitamin content.

Furthermore it is well known that many children and not a few adults refuse to drink milk, or to eat cheese, or eggs or vegetables. Moreover at certain times an individual may be advised by the physicians to abstain from raw fruits, or tomatoes or other foods rich in vitamins. How are such individuals to obtain the necessary vitamins that are so essential to health? If such abstinence is continued for a protracted period there is the possibility of definite harm resulting because of the lack of vitamins.

It is known that disturbances in health may exist without arriving at the extreme stage when the appearance of a severe set of symptoms leads to the recognition of actual disease. This is particularly true of malnutrition which may arise irrespective of the quantity of food eaten. Malnutrition excluding its appearance in those who are pathologically ill, depends not upon insufficient food but upon improperly prepared foods or upon an improper combination of foods. It is essential to recognize that the absence of vitamins leads to poor nutrition. Particular attention should likewise be paid to the diet of nursing mothers. Because of inability of the body to synthesize its own vitamins it is of prime necessity that the nursing mother partake of such a diet as will ensure an adequate supply of vitamins so that her milk will constitute a satisfactory food for the baby. If sufficient vitamins are not obtained in the usual diet the deficiency must be supplied in some other way, as suggested by Voegtlin.

Discussing the importance of vitamins in relation to nutrition in health and disease, Voegtlin says "It is of great importance that vitamin preparations should become available to the practising physician for the treatment of deficiency diseases. It is quite possible that a number of indefinite complaints and symptoms of adults and infants may be due to a partially deficient diet and would be benefited by the administration of vitamins. It is not always necessary

that the full picture of a deficiency disease make its appearance. Such vague symptoms as loss of appetite and general weakness might very well, in some instances, be due to a deficient diet."

From the foregoing, it is obvious that there is a definite place in medicine for some preparation that will contain the vitamins in concentrated form. Granting this, we are immediately threatened with a flood of "vitamine preparations" for which there is at best only a limited field of *bona fide* value. Only a product which is backed by extensive clinical evidence merits our attention, whether or not we ultimately make use of it. Under normal conditions, as previously stated, the usual mixed diet suffices to keep an individual in good health. Our efforts then should be exercised to keep conditions normal for the individual, both by appropriate food legislation and by educational propaganda. However, until these *desiderata* are attained, the physician, having exhausted the natural corrective possibilities, need not hesitate to make use of a proven preparation containing vitamins in concentrated form, whose efficacy has been established by clinical experience.

When a physician finds that his patient is in need of iron or phosphorus or calcium, he does not attempt to obtain these substances from foodstuffs exclusively, but he has recourse to some suitable preparation of the desired element, in order to secure more immediate results. In the case of vitamins, the same procedure holds good, but in a greater degree, since we are dealing with a substance whose therapeutic value depends so much upon its stability and whose chemical nature we have still to fathom.

As to the chemistry of the vitamins, comparatively little progress has been made since 1911 when Funk obtained from rice polishing and yeast a substance which could prevent and cure beriberi. In the Research Laboratory of H. A. Metz, work is now progressing on the identification of this substance isolated from yeast, the procedure having been greatly facilitated by the introduction of a simple chemical test for the vitamin activity of a substance under investigation. The attempt is also being made to isolate the active principle of cod liver oil, the results obtained thus far serving as an incentive to greater efforts. This is of particular importance in view of the fact that recent investigations by Howland, Hess, McCollum and others have established, scientifically the heretofore empiric knowledge that cod liver oil is a specific for rickets.

In conclusion, appeal is made for more constructive and less destructive criticism in this field of work, if real progress is to be made. It is felt that it would be highly desirable to have the co-operation of the pure chemist to help solve the mystery of the vitamins. It is not at all impossible that pure vitamin when isolated and identified may exert some distinct physiologic effect not heretofore recognized with the naturally occurring foodstuffs.

## NATIONAL RESEARCH COUNCIL

### FUNDS FOR SCIENTIFIC RESEARCH

The Research Information Service of the National Research Council has recently compiled information about funds for scientific research. From this compilation it appears that there are hundreds of special funds, trusts, or foundations for the encouragement or support of research, in the mathematical, physical and biological sciences, and their applications in engineering, medicine, agriculture and other useful arts. The income from these funds, which amounts annually to at least fifty million dollars, is used principally for prizes, medals, research scholarships and fellowships, grants and sustaining appropriations or endowments.

So numerous have been the requests to the Research Council for information about sources of research funds, availability of support for specific projects and mode of administration of particular trusts or foundations, that the Research Information Service has created a special file which it is proposed to keep up to date in order to answer the questions of those interested in such funds.

Furthermore in order to give wider publicity to the immediately available information about research funds, the Council has issued a bulletin under the title *Funds available in 1920 in the United States of America for the encouragement of scientific research*."

Inquiries concerning the bulletin or for information about research funds should be addressed, National Research Council, Information Service, 1701 Massachusetts Avenue, Washington, D. C.

## Deaths.

BALLINTINE, EVELINE P., Rochester, University Michigan, 1877, Fellow American Medical Association, American Medico-Psychological Association, State Society, Rochester Academy of Medicine, Physician Rochester State Hospital. Died May 29, 1921.

CONTESSA, LAWRENCE, New York City, Long Island College Hospital, 1909, Fellow American Medical Association, State Society, Assistant Surgeon Sydenham Hospital, Attending Gynecologist and Obstetrician Lenox Hill Hospital. Died June 21, 1921.

KALISH, RICHARD, New York City, Bellevue Medical College, 1875, Fellow American Medical Association, Fellow American College of Surgeons, State Society, Academy of Medicine, Consulting Ophthalmological Surgeon Knickerbocker and City Hospitals. Died June 20, 1921.

LAIRD, EUGENE BERRARD, Haverstraw, College of Physicians and Surgeons, of New York, 1877, Member State Society, Attending Physician State Hospital for Crippled and Deformed Children. Died June 24, 1921.

WOOD, WARREN C., Lockport, Berkshire, Mass., 1866, Member State Society. Died May 25, 1921.

**New York State Journal of Medicine.**

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street New York N Y

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Secretary ARTHUR W. BENSON M D Troy.

*Surgery*

Chairman GEORGE W. COTTIS M D Jamestown.  
Secretary HORACE H. LE SEUR M D Batavia.

*Obstetrics and Gynecology*

Chairman FRANCIS C. GOLDSBOROUGH M D Buffalo.  
Secretary PAUL T. HANFEN M D Albany.

*Eye, Ear, Nose and Throat*

Chairman HENRY L. LYNAH M D New York.  
Secretary EDMOND F. BLAAUW M D Buffalo.

*Public Health Hygiene and Sanitation*

Chairman PAUL B. BROOKS M D Albany.  
Secretary ARTHUR D. JAQUES M D Lynbrook.

*Neurology and Psychiatry*

Chairman MICHAEL OSYATO M D New York.  
Secretary S. PHILIP GOODHART M D New York.

**MEDICAL PUBLICITY**

AT the recent meeting of the American Medical Association in Boston, the Speaker of the House of Delegates, Dr. Dwight H. Murray, of Syracuse, made a strong plea in his annual address for impersonal medical publicity, and detailed several plans by which he considers it practical for the Association to undertake this work. The President of the Association and others also spoke of the desirability of such an undertaking and the Trustees will doubtless give this matter their careful attention.

The modern tendency of the progressive American is to know as much as possible about the subject with which he is dealing. Progress in preventive medicine is awakening public interest in health and people wish to know what they can about it as it concerns them and consequently interests them. Proper medical publicity and the resulting education of the people is a far more potent weapon in fighting the menace of quacks and cults than any restrictive legislation can ever hope to be. It also produces a better understanding of the physicians by the people, for their mutual benefit.

The public health lecture is one of the ways in which such reading will be made popular in addition to its value otherwise. In connection with the recent annual meeting in Brooklyn of the Medical Society of the State of New York, a number of health talks were delivered by physicians on Sunday evening. The publication of the American Society for the Control of Cancer is authority for the statement that over 3,000 people attended the lectures on cancer in six churches on that evening. This proper dissemination of medical knowledge which is of use to the public should be the duty of every physician. It is an interesting and self-educational task to work up a lecture of this kind and the material as well as the illustrative lantern slides are eagerly furnished by Boards of Health and other organizations interested in public health propaganda. In view of the good that can be accomplished in this way every physician should consider himself called upon to deliver lectures of this kind on suitable occasions.

Many County Societies have organized Public Health Education Committees for this purpose but these bodies have had difficulty in obtaining suitable co-operation of the proper physicians in the presentation of attractive programs. On the contrary, every physician should be eager to assist in this publicity in the interest of public health and in the establishment of a better relationship between him and his patient. In this way also the public will be taught a better understanding of the value of efficient medicine in the hands of persons of superior education and will learn to lend support to legislative efforts intended to safeguard patient and physician alike.

## COMMISSION ON MILK STANDARDS

A summary report by the Commission on Milk Standards for the nine years ending December 10, 1920, recently published by the United States Public Health Service, contains matters of much interest to health officers and to chemists and bacteriologists.

Standard whole milk, says the report, should contain not less than 85 per cent milk solids not fat and 3.25 per cent milk fat, standard skim milk not less than 8.75 per cent of milk solids, standard cream not less than 18 per cent milk fat and be free from all constituents foreign to normal milk.

The Commission believes that it is necessary to permit standardized and adjusted milk, this despite the fact that it recognizes the ease with which milk is contaminated and the difficulty of so controlling standardizing, skimming, homogenizing, souring, etc. as to prevent contamination and the use of inferior materials. The manipulation of the milk, however, should be controlled, the product should be labelled "adjusted milk" (the label showing the minimum guaranteed per cent of fat), and the milk should comply with the sanitary and chemical requirements of unmodified milk.

To meet conditions in cities where milk contains less than 85 per cent solids not fat, milk sellers should be permitted to choose whether they will sell under the regular standard or under a guaranteed statement of composition. The sale of any normal milk should be permitted if its per cent of fat is stated. If this is not stated the sale should be held to be unlawful unless the milk contains 3.25 per cent milk fat. Dealers selling under the guarantee plan should be required to state the guarantee conspicuously on all milk containers.

The number of bacteria in milk depends on dirt, temperature and age. Specific disease bacteria are not often present, and the difficulty of detecting them by laboratory methods renders these of little value in guarding milk against specific disease. The only practical safeguard is by medical, veterinary and sanitary inspection and by pasteurization.

Bacterial counts indicate the safety and the "decency" of milk. Small numbers of bacteria indicate fresh milk, produced under clean conditions and kept cool, large numbers indicate dirty, warm or stale milk.

Bacteria in milk are related to infant mortality. Children fed on milk containing few bacteria show a lower death rate than those fed on milk containing many. Bacteria harmless to adults may cause infant diarrhea, and milk containing large numbers is apt to contain species capable of setting up intestinal inflammation in infants.

The interests of public health demand that the production and distribution of milk should include frequent bacterial laboratory examinations. In making the counts the methods of the American Public Health Association Laboratory Section should be used. To meet the charges often made that pasteurization is used to cover up careless or filthy methods, milk should be required to measure up to standard both before and after pasteurization.

The Commission holds that health officers are justified in using the bacterial count (1) as an indicator of the care exercised in keeping healthy cows and supplying clean, fresh, cold milk, (2) in condemning milk with a high bacterial count as being unwholesome or as containing dirt, filth, or decomposed material, (3) in classing milk containing large numbers of bacteria as unwholesome, unless the bacteria can be shown to be harmless, as for example, lactic acid bacteria in butter-milk.

Extensive study justifies the conclusion that bacterial analyses of duplicate samples of milk by routine methods in different laboratories vary about 28 per cent. Tests of five samples will give fairly accurate results and will always permit any milk to be accurately graded.

At least four of the five should show fewer bacteria than the maximum allowed for the grade awarded. Grading should never be based on a single sample.

The grading of milk by the bacterial tests greatly modifies milk inspection by public health officials. Bacterial tests should precede dairy inspection, for they will point the way to insanitary milk. The milk inspection service should be reorganized, and it and the laboratory service co-ordinated under one head.

The Commission on Milk Standards, which was established in March, 1911, by the New York Milk Committee, a voluntary organization, consists at the present time of seven public health officials, six bacteriologists, four chemists and two agricultural experts. Fourteen have been physicians, three have long practical experience in the milk industry, and six have been connected with the production and control of certified milk.

## SHEPPARD-TOWNER BILL

The American Gynecological Society, at its Forty-sixth Annual Meeting, held June 2 to 4, 1921, took the following action regarding the bill for the protection of mothers and infants, commonly known as the Sheppard-Towner Bill.

This action of the Society was taken, almost unanimously, after careful consideration of a report of its Committee on Maternal Welfare, acting jointly with a similar committee of the American Child Hygiene Association.

This Society wishes definitely to state its position for the information of the medical profession and others who are interested in this legislative program.

1 The committee is in thorough accord with the ends which this bill seeks to attain, namely, the protection of the health of mothers and infants.

2 We endorse the co-ordination of all health activities under one head. We consider the protection of mothers and infants to be a *health measure* of paramount importance to the individual and the State.

3 We oppose in principle the control of health measures by non-medical individuals or boards.

4 We believe in the local control of health activities as distinguished from Federal. We approve and indorse the idea of propaganda and investigation emanating from the Federal Government.

5 We do not indorse the Sheppard-Towner Bill in its present form because it does not conform to the above principles and because it embodies the questionable plan of subsidizing State health activities.

6 We indorse the project of establishing a National Department of Health.

GEORGE GRAY WARD, JR., *President*

ARTHUR H. CURTIS, *Secretary*

GEORGE W. KOSMAK,

FRED J. TAUSSIG, *Committee*

FRED L. ADAIR, *Chairman*

## IMPORTANT NOTICE TO PHYSICIANS FEDERAL LAW SUPERCEDES STATE NARCOTIC LAW

On July 1st, the State Department for Narcotic Drug Control went out of existence. No provision was made for the carrying on of the work by any other department or bureau, so that the only narcotic drug law now operative in New York State is the Federal or so-called Harrison law.

The State Department of Health reports that it is receiving a great many checks for narcotic drug registration blanks. These checks are being returned to the senders. The State Health Department has no jurisdiction in this matter.

Physicians are requested to make note of this fact.

## Correspondence

52 Broadway  
New York, June 17 1921

Editor NEW YORK STATE JOURNAL OF MEDICINE

SIR I am informed that a short time prior to the hearing held by Governor Miller upon the narcotic bills a mimeographed circular letter was sent to the secretaries of all the county medical societies and the delegates to the State Society signed by James I. Rooney, Chairman Committee on Legislation. A copy of this letter has recently been shown me. It contains a statement referring to the Cotillo narcotic bill of the previous legislative session reintroduced this year with slight changes as the Fearon Smith bill which reads as follows:

From reliable information in the possession of the Chairman of your Committee on Legislation of the State Society this bill was drawn by Mr. Greenfield, an attorney of New York City in conference with Drs. A. Lambert, A. C. Prentice, E. Eliot Harris and Mr. Towns of the Towns Sanatorium for Drug Addicts located in New York City with certain others.

The impression was conveyed by the letter as a whole as well as by the statement quoted that the bill was drawn in the interest of Mr. Towns and other owners of private institutions for the treatment of drug addicts.

As an injustice has been done to me by the circulation of this false statement I trust you will permit me the use of your columns to deny it.

The fact is that in the planning and preparation of the bill I had no conference with any of the four gentlemen mentioned except Dr. Harris. I have never had any communication with Mr. Towns or any one representing him regarding this or any other bill. I have no idea what his attitude toward the bill may be. The persons with whom I consulted in the preparation of the bill were officials of the New York State and County Medical Societies of the Federal Government and of the New York City Health Department.

I have devoted a good deal of time to study of the narcotic drug problem and to work in connection with it. Having retired from practice as an attorney several years ago this work has been entirely at my own expense. I have been careful to avoid association with any private or business interest. In drafting this bill as in all other work I have done in connection with narcotics I have considered only what I believed to be the public interest.

ARTHUR D. GREENFIELD  
Attorney at Law

226 West 78th Street New York  
June 24 1921

Editor NEW YORK STATE JOURNAL OF MEDICINE

A letter directed to the secretaries of the County Societies and Delegates to the State Society signed James I. Rooney, Chairman Committee on Legislation Medical Society of the State of New York and sent just prior to the meeting of the House of Delegates merits serious criticism.

The writer makes clear his personal dislike for the Fearon Smith bill and although familiar with its definite provisions proceeds to indulge in numerous false and misleading statements regarding the bill with evident intent to cast discredit upon it as a thing of evil purpose. Furthermore imputations of improper unworthy and unprofessional motives are reflected upon the responsible for its inception. Such attack personal in character upon two honored members of the State Society upon the undersigned directed to represent the New York County Societies as members of its Committee on Narcotic Drug Legislation and upon the attorney who drafted the measure was a scandalous (if not indeed libellous) attempt to represent them as actuated by motives identical with those of commercialist proprietors of institutions engaged in the business of exploiting for gain cases of alcohol and narcotic addiction.

Senator Coultio, who sponsored the bill last year, falsely represented as having repudiated his bill with bitter condemnation for those who gave it to him. However having been present throughout the hearing the undersigned is peculiarly in position to state that the Senator did not withdraw his bill at that hearing. For on leaving in company with the Senator in personal conversation we were assured by him of his warm support and growing interest in the purposes of his bill.

Then again, on March 8th of this year when shown a printed newspaper item to that effect the Senator denied to me point blank that he had ever repudiated his bill. He was visibly annoyed by repeated assertions of its opponents that sinister interests were behind the bill seeking through it to secure a monopoly of institutional treatment of drug addicts for private gain and declared earnestly that no such interests were backing the measure to his knowledge but that if such charges were true he would have nothing further to do with it. As a matter of fact the charges were totally untrue. In addition, the County and State Societies had definitely approved the measure after careful study through two or three different committees and their reports recommending it had been adopted by the House of Delegates of the State Society.

The bill slumbered in the Senate Public Health Committee until during the closing hours of the legislative session in its stead the Gibbs bill was reported out with no hearings whatever so far as we can learn and passed Governor Smith promptly vetoed that bill. Its provisions were similar to those of the Lord Smith bill number two of this session aiming to preserve the privilege of prescribing and dispensing narcotics to drug addicts for self administration under pretended sanction of State law regardless of the explicit prohibition of such practice in the Federal statute.

Recent review of United States District and Supreme Court decisions now existing with relation to the Harrison Law and its interpretation no longer leaves any doubt as to its clear meaning and purpose to prohibit such practices under guise of treatment. United States Internal Revenue agents have issued warning in the public press that they are prepared to vindicate the law through the arrest and prosecution of physicians prescribing and of druggists filling prescriptions in such violation.

The Fearon Smith bill approved by the New York County Societies and by the Committee on Public Health for the Greater City of New York of the State Society has been justly regarded as an excellent model for a uniform State narcotic law such as was recommended in the report of its Committee on Narcotic Drugs adopted by the American Medical Association at its recent Boston session. (See report Jour. A. M. A. pp. 1669-71). The Medical Society of the County of New York in resolutions adopted May 23 1921 expressed the belief that this bill was best calculated to provide against the foreseen deficiency in the State laws resulting from the repeal of the Whitney Act and now held inadequate to deal with addicts and peddlers. Such deplorable situation is emphasized in a recent demand by city magistrates upon the Department of Health of the City of New York that the Sanitary Code be amended so as to provide power to commit drug addicts to institutions to hold them for treatment and to arrest and punish illicit dealers in narcotic drugs.

The undersigned has never been engaged in the treatment of drug addicts in his private practice and further disclaims any personal interest whatever in their treatment institutional or otherwise save only the common interest in the public welfare to be gained through a proper solution of the narcotic drug problem.

ALFRED C. PRENTICE, M. D.  
Member Committee on Legislation  
Med. Soc. County of New York  
Member Committee on Narcotic Drugs  
American Medical Association



## Book Reviews

**KEEN'S SURGERY** Volume VII By Surgical Experts Edited by W M Keen, M D, LL D, Hon F.R.C.S. Eng and Edin, Emeritus Professor, Principles of Surgery and Clinical Surgery, Jefferson Medical College, Phila. Octavo 855 pages, 359 illustrations, 17 in colors W B Saunders Co, 1921 Phila and London

Dr Keen, associated with a distinguished coterie of authors now presents volume VII of his surgery. The six previous volumes record the progress of surgery up to 1913. The volume under review has been delayed by the occurrence of the World War.

The eminent editor had two main objects in mind in presenting this supplementary volume, first to record the surgical achievements of the World War, second to apply the principles which have been found of established value to the civil surgery of peace.

What are these achievements and principles which we now recognize and use in our present treatment? What old pre-war conceptions have been revolutionized? This volume presents authoritative views on these changes. In the main, the three important changes are in the treatment of wound infections, of fractures and wounds of joints.

As regards the problem of infections in general it may be said that the Carrel-Dakin treatment has come to stay. But this is to be emphasized, that only the accepted technic should be employed, requiring team work on the part of surgeon, chemist, bacteriologist and nurse. Early and complete excision of wounds—i.e., complete removal of the invading bacteria and dying or dead tissues, in the later stages of the war gave truly surprising results, allowing primary or delayed primary suture and a large proportion of primary unions.

Concerning the advances in the treatment of open fractures it may be stated the practice of primary suture is a sound principle. The cases, however, need careful selection and surgery must be well done.

Willem's treatment of wounds of joints marks the third most important advance. In clean wounds immediate active mobilization has been practiced in varying degrees for a long time. Opinions still differ in regard to applying this principle to septic joints, some holding that to move an inflamed joint is but to add insult to injury. Others adopt an intermediary course that active motion is in order only when the acute infection has subsided. Those who have had most experience and who have seen the results obtained in ambulatory patients with septic knees and lateral drainage openings oftentimes with the pus escaping upon the outer dressing, are impressed and become convinced the method has advantages over rest, restriction and flogging of the joints. Such wounds simply do not drain when immobilized because of the complicated nature of the knee joint. Suction action forces drainage.

Chapters of special interest in this new volume deal with organization of the medical departments of the Army and Navy, gun-shot fractures, the surgery of joints and peripheral nerves. R H FOWLER

**SYPHILIS** By LLOYD THOMPSON, Ph B, M D. Second Edition thoroughly revised. Octavo of 486 pages, illustrated with 81 engravings and 7 plates. Lea & Febiger, 1920. Phila and New York. \$7.00

The second edition of this book is even more attractive than the first. The author states that the advance in our knowledge of syphilis during the past seventeen years finds no equal in the entire history of medicine. As the value of many remedies and procedures is still in a state of flux, and the current literature is so voluminous no one can keep up with it, it is necessary to read a new work every two years to be informed. No better book is to be had than this one not only for the

specialist but for every practitioner, for there is no department of practice in which some knowledge of this universal disease is not a daily necessity.

The chapters dealing with visceral syphilis are especially valuable. STURDIVANT READ

**THE MEDICAL CLINICS OF NORTH AMERICA** Bi-monthly. Volume 4, Number 2 Boston Number September, 1920, Volume 4, Number 3, St Louis Number, November, 1920, Volume 4, Number 4 Philadelphia Number January, 1921 W B Saunders Co, Phila and London \$12.00 per annum

The Boston number of these Clinics carefully covers the medical field and continues the standard of excellence already established. It is difficult to pick one article as better than another among these carefully presented cases. The Diagnosis of Mitral Stenosis by Dr. Paul D White and Wm D Reid is a wonderful presentation of a difficult condition to diagnose and is clearly written. Empyema complicating Pneumonia by Dr Edwin A Locke is excellent. Among the papers presented on diseases peculiar to children may be mentioned the article on Enuresis by Dr Joseph I Grover. This difficult to correct, but not serious, condition is carefully reviewed. The mention of a few titles is enough to show the excellence of this number of the "Medical Clinics."

Vol 4, No 3, November, 1920 (St Louis Number)

In this issue we find much concerning the Ductless Glands and the Disturbances due to Abnormal Function of these Glands. The article on Endocrine Amenorrhea is well presented as are also the articles on Basal Metabolic Rate in Endocrine Disturbance and Neuropsychic Reactions Associated with Disturbances of Ovarian Function. The Essentials in Neurologic Diagnosis is thorough and carefully prepared. The article on Endocarditis is excellent for differential diagnosis. The other papers are good. It is difficult to pick special articles for mention as all the articles uphold the excellent standard of these Clinics.

Vol 4, No 4, January, 1921 (Philadelphia Number)

This issue is one of the best of these excellent Clinics. The subjects are so varied and each one is so ably presented that the reviewer finds it difficult to mention any as of special merit. Pain in the Lower Back, an apparently simple matter, is well discussed by Thomas McCrae. The anemias and blood conditions are well presented in this issue. The Medical Aspects of Retinal Hemorrhages are carefully considered. Observations on Nephritis by John H Musser, Jr, give us an insight into common and uncommon renal conditions. The article which probably will give greatest results to each reader is Routine Procedures in Clinical Medicine—an article which shows how easily we all fall into error. It seems as though these Clinics are improving with each issue. They certainly are a necessary addition to each busy man's library. HENRY M MOSES

**SWISS WATERING PLACES** (New York, Official Information Bureau of Switzerland, 1921) Octavo of 86 pages, illustrated

This booklet is furnished by the Official Information Bureau of Switzerland, located at 241 Fifth Avenue, New York, and is designed to give reliable information on the various Swiss health resorts.

Inasmuch as the end of the war has re-opened European spas to the American traveler, it is well that there should be furnished to the physician in this country something tangible in the way of data, so that he may be in a position to give intelligent advice to his patients.

Nine important health resorts are included in the booklet, setting forth the situation and climate, the local geology, and analysis of the waters with indications and contra-indications for their administration.

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL 21, No 8

NEW YORK, N Y

AUGUST, 1921

## TUMORS OF THE KIDNEY—REPORT OF THREE CASES\*

By THOMAS F LAURIE M.D.  
SYRACUSE N Y

IT is the purpose of this paper to consider solid tumors of the kidney in the adult, briefly review the diagnostic features, and present to you three cases seen by the writer during the past year.

Malignant growths of the kidney comprise enough of the total number that occur in the body to make the consideration of this subject of some importance. A very small percentage of tumors of the kidneys are benign. Clinical differentiation of the various pathological types is not possible by the diagnostic means now at hand. Therefore only the clinical manifestations and urological study will be presented here.

As a part of the general cancer problem tumors of the kidney differ from growths in other parts of the body. When we consider that the great majority of these tumors are the so called hypernephromata, the nature, source and pathology of which is a bit more obscure than in most other malignant tumors, that metastases of these growths are distributed through the blood stream, and that early manifestations are erratic and uncommon, it is evident that cure by removal becomes much more difficult. We are favored however, in that their growth is frequently slow so that given clue for investigation early diagnosis is often possible. Our results should therefore, improve as we progress in diagnosis and treatment. It is also true however, that the most common tumor, hypernephroma, is considered very malignant and that recurrences after their removal are perhaps more frequent than with other types. In reviewing the literature of say, a decade ago, one is struck by the fact that most of the excellent papers are reviews of cases operated upon by various surgeons over a period of years, and that the diagnoses are based on clinical symptoms and physical signs obtained without the aid of our present day more exact methods for study of the urinary tract. This would seem to indicate that in the future our efforts will permit in earlier diagnosis and con-

sequent earlier extirpation with better promise of cure.

The three cardinal clinical symptoms of new growth in the kidney are (1) hematuria, (2) tumor, (3) pain. It is of interest to consider the frequency of occurrence of these manifestations. Hinman in a recent paper reviewed the literature up to 1917 and found that all three occurred in from 32 per cent to 60 per cent, or an average of 38 per cent.

Hematuria, when present, is a most important symptom. It may occur in any degree from a faint tingeing or cloudiness of the urine up to the passage of large clots. To be of early value there must be enough to attract the patient's attention. It frequently comes on suddenly, filling the pelvis and ureter causing clots in the ureter, and, as a result of this, renal colic. Indeed, in one of the cases, which I shall report, there was so much blood in the ureter at the time of the first examination that it was impossible to pass the catheter until the clot had been expressed. This symptom may come on suddenly, last a short time, and the patient recover with apparently no difficulty, and without other immediate symptoms. The patient or his physician may pay no attention to it until suddenly they are confronted by a large inoperable malignant mass in the abdomen.

*Hematuria should be considered as evidence pointing to malignancy of the urinary tract until proven otherwise and demands complete and searching examination of the urinary tract.* It occurs in about 42 per cent of renal tumors as an initial symptom.

Tumor appears as a first symptom in about 18 per cent of the cases. If one finds a mass in the upper abdomen to right or left of the mid line, which tumor moves with respiration, it is good judgment to think of a kidney. However, whether or not such a mass is a new growth in the kidney is often difficult to determine. Tumors of other viscera may simulate tumors of the kidney. On the other hand a small growth in the kidney may not be palpable, tumors of the upper pole of the kidney may be so small that no part of the kidney is palpable, kidneys placed high in the abdomen combined with a thick abdominal wall may preclude the possibility of palpation even through the site of a malignant growth.

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 3 1921

Normal kidneys may be placed low and easily palpable simulating a new growth. When a large mass is easily felt and we can make a diagnosis of renal tumor it may be too late for surgical aid.

Pain occurs in about 32 per cent of the cases as an initial symptom. We must distinguish between pain due to the growth itself and that due to imperfect urinary drainage. The former may be due to the enlargement of the growth distending the kidney capsule and pressing on nerve endings within the kidney, or it may be due to pressure on outside nerve trunks. The latter may be caused by the growth interfering with urinary drainage or to ureteral clots producing the same result and giving rise to renal colic. The character and location of the pain may vary. For example, it may be referred to divers parts of the abdomen or back and is often quite misleading. The most enlightening pain is that which results from improper urinary drainage for it directs attention to the affected side.

Other symptoms affecting the circulatory system have been noted, namely dilatation of superficial blood vessels. Those found in the bladder on cystoscopic examination, varicocele or hemorrhoids, can be explained on a mechanical basis—pressure from the growth obstructing venous return either within the kidney or in the great vessels outside.

An explanation of dilatation of blood vessels in other parts of the body has been suggested by assuming the possibility of a toxin elaborated by the tumor effecting the vaso motor system.

If there are symptoms clear enough to direct attention to the urinary tract, such as one or two of the cardinal ones we have mentioned, the cystoscopic and X-ray examinations should be most exhaustive and complete.

Examination of the urine may disclose the presence of blood or pus. If there is microscopic blood in the urine the cystoscopic examination should be made if possible while the patient is bleeding so that we may be guided to its source. Pus may be due to interference with urinary drainage or to necrosis of the tumor. A specimen of urine obtained by catheter and caught in a sterile container is extremely valuable. It should be carefully examined microscopically and by culture so that infection may be determined if present.

Cystoscopic examination should be undertaken with the idea of obtaining all information necessary to make a diagnosis or to confirm one made from other clinical findings. The extent will depend upon the conditions presented previous to cystoscopy and those ascertained during the procedure. The cystoscopic examination should include a determination of the amount of residual bladder urine if any, and the bladder capacity,

careful observation of the bladder and ureteral orifices, catheterization of the ureters, and, if thought necessary, the passage of a wax-tipped catheter. The urine from the ureteral catheter should be carefully studied for the presence or absence of albumin, kidney function should be determined by either the phthalein output or estimation of comparative urea content, cultures should be made, microscopic examination with a careful search for tubercle bacilli and inoculation of guinea pigs.

The presence of pain, tumor or hematuria will usually direct one to the affected side and on this side a pyelogram should be made. Previous plain Roentgenograms are at times valuable in that it is possible so to determine an enlarged kidney on the affected side. A positive pyelogram is the most certain evidence of renal tumor. In carrying out the procedure it is well to make an X-ray picture after the shadow catheter has been passed to the kidney and before the opaque fluid has been introduced in order to ascertain the course of the catheter and the presence or absence of calculi. The opaque fluid should then be introduced slowly to the point of full distension of the pelvis and the amount measured.

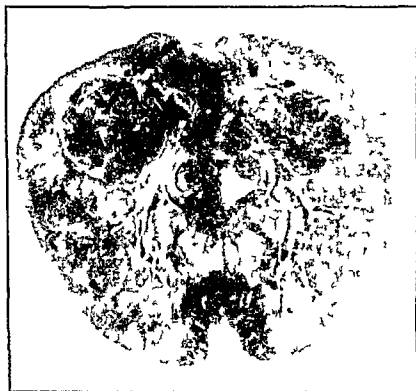
If in this radiographic study the pyelogram is to show the pathological change the tumor of necessity must have encroached upon the pelvis of the kidney. The changes produced depend upon the location and size of the tumor. One or more calyces may be well retracted into the kidney substance and the major calyces and true pelvis may be thinned out, giving the so-called spider leg deformity. There may be dilatation of parts of the pelvis due to interference with drainage or the position of the pelvis may be quite markedly changed. There should be little difficulty in recognizing these gross changes or any combination of them.

It is the very minor changes caused by slight encroachment of a tumor on the kidney pelvis, which is of the greatest value in making an early diagnosis. It may be found that a new growth has entirely filled the pelvis of the kidney, preventing the entrance of any fluid.

Once found, the treatment of kidney tumor is nephrectomy, provided there is sufficient kidney tissue on the other side to maintain life, and provided the growth is removable with no evidence of metastases. Such removal may be followed by treatment with radium or the X-ray.

The following three cases illustrate many of the points spoken of above.

CASE I—Man, age 34, single. Seen in January, 1920 in consultation with Dr. H. L. Gilmore. First noticed blood in urine nine months previous. No pain at the time, but it lasted two days. Next bleeding occurred three months later lasting same length of time. When seen he had been taken suddenly with blood in the

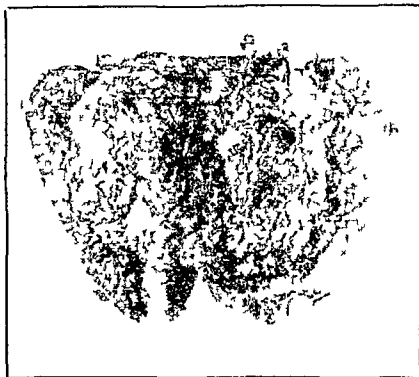


CASE I

urine after some heavy lifting. The bleeding was quite severe, the patient passing clots and having difficulty in urinating.

Examination revealed no tenderness or masses. Kidneys not palpable or tender. Prostate normal. Plain X ray showed enlargement of right kidney. Cystoscopic examination showed a small blood clot protruding from right ureter. On account of this it was impossible to pass a catheter. We succeeded in expressing a blood clot of the entire length of the ureter. Catheters were passed to the kidney on both sides. The urine

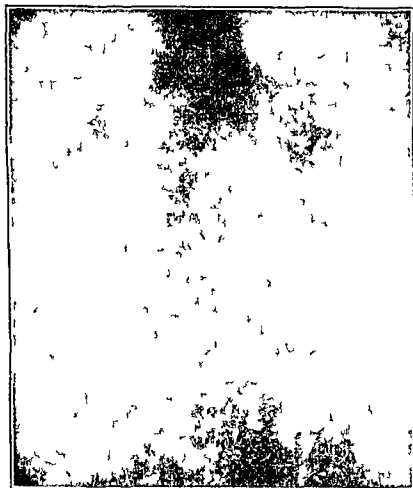
from the right kidney showed a very slight decrease of function (urica) and blood. The urine from the left kidney was normal. A pyelogram showed a slight filling defect between the upper and middle calyces with some widening of the major calyces. Pelvis held 20 cc of fluid.



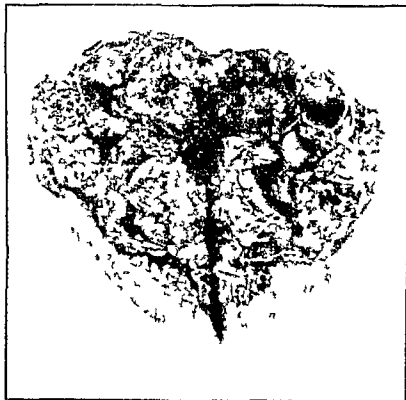
CASE II

Operation nephrectomy. The kidney on section showed a small hypernephroma between upper and middle calyces protruding into pelvis.

CASE II—Woman age 50 single. Seen in August 1920 in consultation with Dr. Martin B. Linker of Ithaca, N. Y. with the history that while in Paris seven years ago patient had an attack of pain in the left kidney region—not radiating—lasting three or four days. This recurred one year ago. About one week before



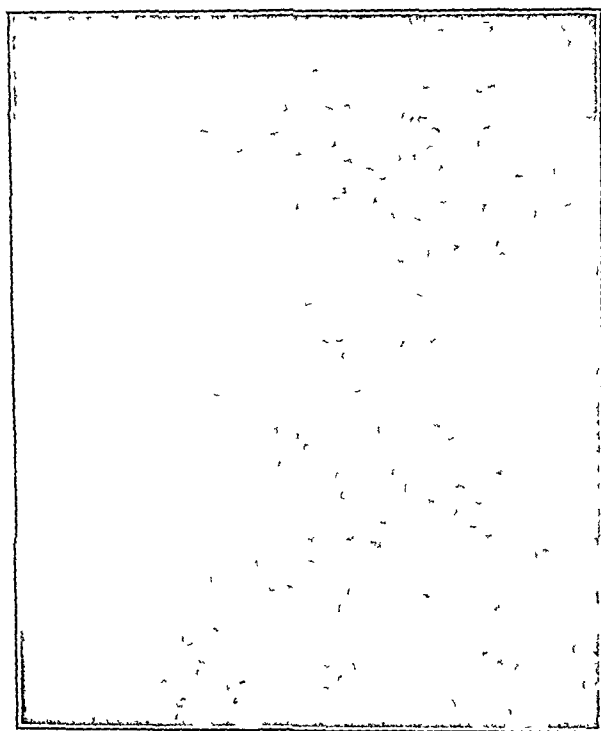
PYELOGRAM CASE I



CASE III

I saw her she had had a repetition of this pain, no bladder symptoms, no blood in the urine, no loss of weight. Examination revealed a right kidney movable to the 2nd degree. The left kidney was easily felt distinctly enlarged and freely movable.

*Cystoscopic* No bladder change. No 6F catheter passed easily to right kidney. No 5F passed on left side—urine showed a slight decrease of function on the left side and red blood cells from the same side. That from right side normal. Pyelogram on left side showed a typical "spider leg," pelvis displaced downward. Operation revealed a large hypernephroma.



PYELOGRAM, CASE III

CASE III—Man, age 53, married. Seen in November, 1920, in consultation with Dr. D. J. Gilbert of Port Byron. Ten years ago patient had an attack of renal colic on the left side and passed some small stones. Was well until four months before I saw him, when he was up on a telephone pole with a lineman's belt on. One foot slipped and threw his weight on to the belt. He was taken with pain in the left kidney region and about twenty-four hours later began to pass large clots in the urine accompanied by left renal colic. This continued for several days. X-ray at this time showed no calculi. He recovered in two or three weeks. When seen by me he had been passing blood in his urine and some clots with attacks of renal colic for two or three weeks.

*Cystoscopic* Normal bladder, No 6F X-ray catheters passed to each kidney. Pyelogram of left side showed a displaced pelvis with marked elongation of calyces.

Operation, nephrectomy. Diagnosis, hypernephroma.

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#### THE DIAGNOSIS OF MYOCARDIAL DISEASE

By HAROLD E. B. PARDEE, M.D.,  
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It is an extremely difficult thing for a physician to be certain that a clinical diagnosis of myocardial disease is justified, and one often finds that such a diagnosis has been made upon a wholly improper and insufficient foundation. Perhaps this is especially true in circumstances where the work is hurried and a tendency to fix upon the finding of one or two of the so-called signs of myocardial disease as making the diagnosis becomes a habit. To show how very wrong even the best practice may be, I may quote the figures collected by Dr. Richard Cabot from the Massachusetts General Hospital. Of fifty-nine cases that came to autopsy, which showed the diagnosis *chronic myocarditis* either on their clinical history or their autopsy report, there were

Twenty-two per cent that were diagnosed during life to have myocardial disease and were found to have it upon autopsy examination,

Fifty-two per cent were diagnosed during life

\* Read before the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 5, 1921.

to have myocardial disease and failed to show it at autopsy.

Twenty six per cent were found to have a myocarditis at autopsy which was not diagnosed during life.

This is 78 per cent of wrong diagnoses, but it does seem likely that at least a fair part of the 52 per cent of patients who were diagnosed to have a disease which they had not could be saved from this error if more care were taken along the lines which will be indicated before deciding upon the diagnosis.

This question has seemed so important to me that I think it well worth while to review our methods of arriving at a diagnosis of myocardial disease, so as to suggest if possible how this large error can be avoided.

The diagnosis of myocardial disease is ordinarily made from the finding of certain symptoms and physical signs, but it is not clearly enough realized that these are for the most part not at all specific of myocardial disease. Any or all of them may arise temporarily because of severe cardiac failure and may disappear again when it is recovered from. It is plain then that they indicate myocardial failure not myocardial disease. Further any of these symptoms and signs may arise from causes other than cardiac disease from things totally extracardiac as will be pointed out.

The symptoms that appear with myocardial disease are

- 1 An increased tendency to fatigue the patient tires more easily than usual
- 2 Shortness of breath appears upon exertion which previously did not cause this
- 3 Precordial pain appears upon exertion or while at rest,
- 4 Oedema is found about the ankles perhaps only at the end of the day
- 5 There may be a slight cough of long standing, a chronic cough

No one will question that these symptoms appear with myocardial disease but when the conclusion is drawn that they indicate myocardial disease there is a possibility of serious error.

As for the physical signs which result from this condition

- 1 Enlargement of the heart is common
- 2 Irregularity of the heart action is frequently found
- 3 The first heart sound often has a sharp or valvular quality it loses its prolonged rumbling character
- 4 The apex beat is weak and diffuse instead of being definite and circumscribed,
- 5 A systolic blowing murmur may be heard at the apex of the heart, due to a relative insufficiency of the mitral ring
- 6 A gallop rhythm may be produced by the sounds at the apex.

Again, all will admit that these signs are the results of disease but they do not indicate it.

A correct diagnosis will demand that these symptoms and signs shall occur in certain combinations and at the same time, it must be possible to exclude certain other conditions which are capable of causing them. A chronic pulmonary tuberculosis, for instance, would prevent our considering dyspnea on exertion easy fatigue, chronic cough and a heart border displaced to the left as signs of myocardial disease. The presence of an aortic aneurysm would likewise account for dyspnea precordial pain and enlarged heart so that if we find these in a patient with aneurysm it is not necessary to invoke a myocarditis to explain them. Examples of this sort of error could be multiplied indefinitely for pulmonary emphysema will give dyspnea on exertion, a chronic cough, a weak apex beat and a weak first heart sound, while chronic hypertension will cause dyspnea perhaps precordial pain, and enlargement of the heart. On the other hand, if a patient does not have cardiac valvular disease, or increased blood pressure, or pulmonary disease, and shows dyspnea on exertion and an enlarged heart with a valvular quality to the first sound of the apex, then there is every probability that he has a diseased myocardium. Yet it was upon just this sort of evidence, presumably that the diagnosis of Cabot's series were founded.

I must also emphasize the fact that tests of the ability of the heart to perform work as shown by blood pressure or pulse rate reactions after exercise cannot properly be taken as indications of the condition of the myocardium. These tests show very well the patient's ability to respond to the demands of exercise and they show much about the heart's ability but there are many other things than heart muscle concerned in these reactions. The presence of valvular disease or of a high blood pressure, or of a certain sort of nervous system will have much to do with the character of the reaction to exercise, as will the presence of pulmonary disease or of adiposity or of certain general diseases. These conditions all tend to diminish the amount of exercise that can be taken without producing an abnormal reaction.

The electrocardiographic record has been brought forward of late years as a sign of myocardial disease. It has shown a whole new series of facts about the contraction of the muscle fibres of the auricles and ventricles. Variations in the records are coming to tell more and more about abnormalities of the muscle fibres, and I wish to show you such of these variations as have come to be connected with more or less definite disease conditions of the cardiac muscle.

The greatest obstacle to the average clinician's use of the electrocardiographic method has been

the difficulty in comprehending the theory of the electrocardiogram. Yet this should not be an obstacle, because a detailed comprehension of the theory is not at all necessary for one who only wishes to use the findings of the records in clinical diagnosis. Our knowledge of the meaning of the abnormal records has been obtained by correlating the records with the clinical features of the patients who gave them and with a certain amount of autopsy material—scarcely at all from the theory.

For the purpose of comparison with the later abnormal records I show you Figure 1, the records of three different patients taken by the usual three leads. These are the records of the electricity produced by the contractions of three normal hearts. They have an auricular portion marked P, which is a simple wave, and a ventricular portion which is more complicated, consisting of a group of sharply pointed, quick waves marked Q, R and S, and a simpler wave marked T. We see each of these three wave

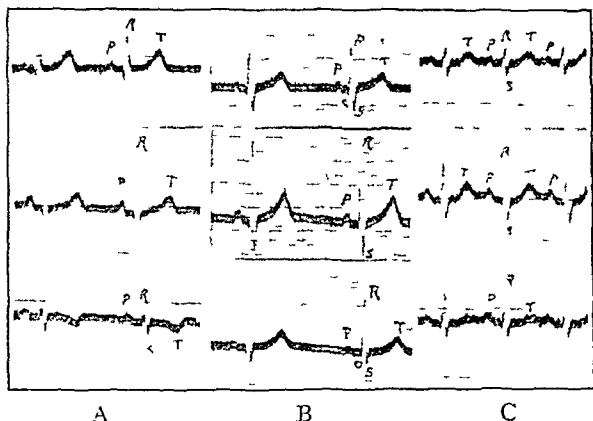


FIG 1—Records from three normal hearts, A, B and C. The uppermost curve is the record by lead 1, the central by lead 2, and the lowest curve by lead 3. This is so in all subsequent records. A movement of the curve across the horizontal lines is due to strength of current 10 lines = 1 millivolt. Time lines are vertical. Movement across the vertical lines serves to measure time: in records A and C the space between time lines is  $\frac{1}{2}$  second, in record B the space between time lines is  $\frac{1}{4}$  second, and between the accentuated lines  $\frac{1}{2}$  second.

components the P wave, the Q-R-S group, and the T wave, in each of the leads but in each lead it is slightly different.

Each of the three records also is different, in spite of the fact that they are all records of normal hearts. They show the sort of normal variations which may occur in records from different normal hearts. The P wave is seen to be turned upward in all three leads. The Q-R-S group, also, is chiefly upward (the R wave is larger than Q or S) in all three leads although lead 1 may be very small as in record C, or lead 3 may be very small as in record A. Record B is an average or

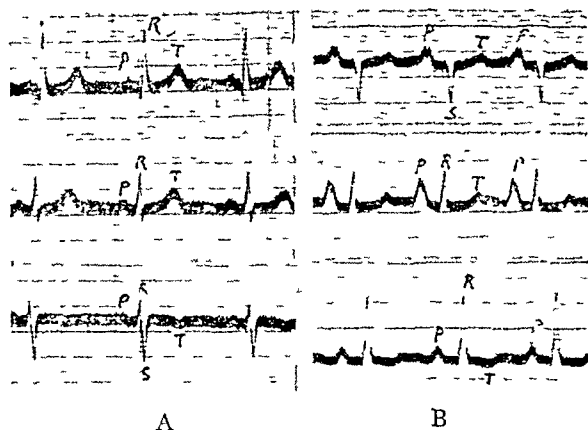


FIG 2—Record from a heart with left ventricular predominance, A, and from a heart with right ventricular predominance, B.

typical record, with fair sized R waves in all leads. The T wave is turned upward in leads 1 and 2 in all records, from normal hearts, but in about one-third of such records it is turned downward in lead 3, as in record A of the figure.

Figure 2 shows the change in the record which is produced by a predominant hypertrophy of one or the other ventricle. Record A shows the effect of left ventricular predominance, record B of right predominance. The characteristic change is in the direction of the largest wave of the Q-R-S group in leads 1 and 3. Left ventricular predominance causes S to be larger than R in lead 3, while right predominance causes S to be larger than R in lead 1, and coincidentally there are changes in the relative heights of the R waves in the other two leads as can be seen in the figure. It is an interesting fact that ventricular predominance, even when very marked, does not change the direction of the T wave.

Such a predominance may result from an hypertrophy of one or the other ventricle, but if both ventricles undergo a simultaneous hypertrophy neither one may become predominant. The heart will then give a record with the Q-R-S group of normal type as shown in Figure 1, not showing either ventricle predominant. This is not an infrequent occurrence when mitral stenosis and aortic regurgitation are simultaneously present, for each leads to a hypertrophy of a different ventricle. From this discussion it should be plain that the electrocardiogram does not tell us whether or not the heart is hypertrophied. This must be found out by percussion or by palpation of the apex beat, or by the X-ray. The record does, however, tell if either of the ventricles has become disproportionately hypertrophied so that the normal relation of the muscle masses of the left and right sides is disturbed. This relation normally lies between

\* The word preponderance is often used as I have used pre dominance here. It seems on the whole to be a less properly adapted word though neither are free from objection in this usage.

perhaps 16 to 1 and 21 to 1 for the left and right ventricles respectively (L/R—from 16 to 21). We should not, though, consider either hypertrophy or a ventricular predominance to indicate muscle disease, for these may arise from purely mechanical causes, such as high blood pressure or valvular obstruction or regurgitation.

Certain forms of irregularity of the heart should be taken to indicate myocardial disease. I shall do no more than enumerate these, though because they have been so much discussed and because they are, after all, not nearly such important signs of myocardial abnormality as are the changes in the form of the ventricular waves. These latter show a disease of the ventricular muscle, and since the ventricles are the important blood driving part of the heart a disease which affects them is of greater importance. Auricular fibrillation, auricular flutter, heart block of any degree and ventricular tachycardia may always be taken to indicate myocardial disease of the part of the heart where the disturbance is initiated. Premature beats from auricles or ventricles and tachycardias from other points

1 and 2 of record C, and in all three leads of the other records. It is due either to a disease of a large focal area of the ventricular muscle or to one affecting a considerable area of the branching of the Purkinje network beneath the endocardium. This disease is apt to be one of considerable extent, and therefore appreciably diminishes the functional efficiency of the ventricles.

Two of these records, A and C, show another abnormality which results from disease, a widening or spreading apart of the Q-R-S group. The Q-R-S group lasts for the space of 12 second which is longer than the figure 10 second, that is considered the maximum normal. Notching and increased duration are often found together because the disease interferes with the spreading of the contraction throughout the ventricular muscle so that the spreading, and therefore the Q-R-S group which accompanies the spreading, takes longer than normal.

These records also show abnormality of the T wave. It is turned down in lead 1 or lead 2, or both. This is due to an abnormal character of the ventricular contraction, and may depend either upon disease or upon a poisoning of the muscle. It may result from the same disease which causes notching of the Q-R-S group, as in these three hearts, or it may result from a diffuse disease which, since it does not involve the Purkinje tissue, is not accompanied by notching or increased width of Q-R-S. It may also be caused by a poisoning of the muscle by such agents as the uræmic poison, whatever that may be as digitalis, morphine, quinin and probably other drugs which have not yet been investigated. When the uræmia is recovered from or the drug is excreted, the T wave assumes its normal upright position in leads 1 and 2. The toxins of pneumonia and of typhoid fever do not seem to have this effect upon the T wave.

In certain records the only abnormality may be a downward T wave in lead 1 or lead 2 or both, the Q-R-S group being of the type of Figure 1 or perhaps showing a predominance of one or another ventricle. Before considering this abnormal T wave to be due to myocardial disease we must carefully exclude the possibility of drugs or other intoxication being present. Some records will have the wave downward in only one lead and others in two or even in all three leads. We do not consider that the more leads affected the more severe the process. It depends more upon the distribution of the disease in the ventricular muscle than upon its quantity, whether  $T_1^*$  or  $T^*$  will be downward.

A word of caution may be necessary as to the interpretation of an increased duration of Q-R-S in the presence of a marked left ventricular predominance, such as is shown in Figure 4.

This method of notation refers to the T wave of lead 1 and the T wave of lead 2 as might be suspected.

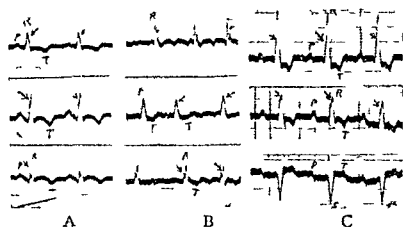


FIG. 3.—Records from three hearts with myocardial disease. Note notching of Q-R-S group pointed out by arrows and abnormal T waves.

than the ventricles are of but doubtful significance in regard to muscle disease. Sometimes they may arise from purely nervous or toxic causes, sometimes they arise because of disease. The decision must rest upon the general features of the curve and not upon the finding of the irregularity.

We learn but little about the disease of the auricular muscle from variations in the auricular wave P, because this has been but little studied. For this reason and for brevity, then, I shall show only the changes in the ventricular waves which are caused by disease of the ventricular fibres.

The records of Figure 3 show several of the abnormalities which may result from disease. There may be a notching of the waves of the Q-R-S group in two or more leads, or what has the same significance, a thickening or slurring of the upward or downward limb or at the peak of a wave. This notching or slurring is indicated by the arrows, and is found in leads



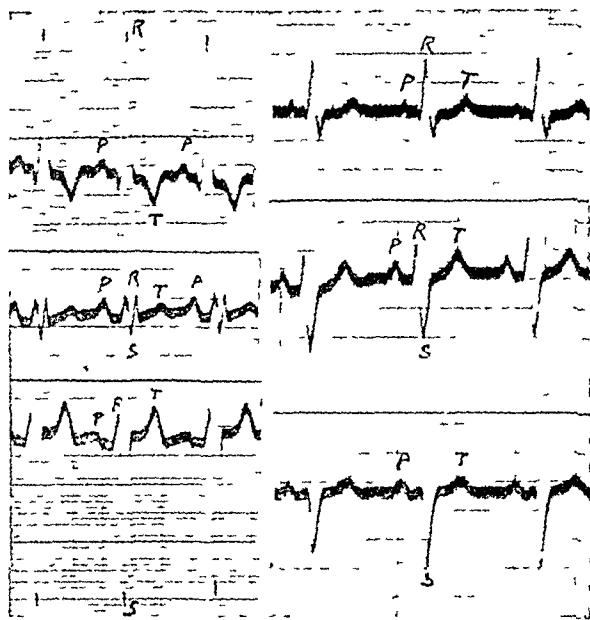


FIG 4—Two records showing marked left ventricular predominance

The extent of the predominance is shown by the large size of  $S_3$  and by the relatively small  $R_2$ , while  $R_1$  is large. Both of these records, like the great majority of those indicating marked left predominance, have a duration of 12 second for Q-R-S, a thing which I believe, with Lewis, may be explained by the increased thickness of the left ventricular muscle that the contraction wave must transverse. The Q-R-S, as has been said, is not completed until the contraction has spread to every part of the ventricular muscle. Record B of this figure, then, would not be considered to indicate myocardial disease because of its prolonged Q-R-S group, while record A would be so because of its inverted  $T_1$ , but not because of the increased duration of Q-R-S, this latter being ascribed to the thickened left ventricle in both records. It may be said parenthetically that both these patients had greatly enlarged hearts, with the apex beat almost to the anterior axillary line, and strongly heaving.

Certain records show a combination of notch-

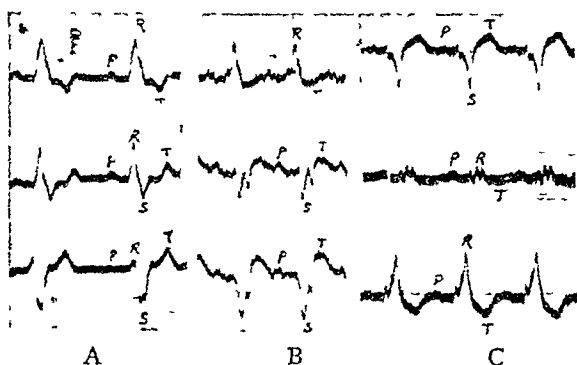


FIG 5—Records A and B show right bundle branch lesion, record C shows left bundle branch lesion

ing, increased width of Q-R-S and abnormal T waves which gives a very typical appearance to the curve as seen in Figure 5. Q-R-S is very wide, lasting 14 second or more, is rather large in size and much notched, and the T waves are directed opposite in each lead to the largest or the last of the waves of the Q-R-S group. This sort of a curve results from a lesion which interrupts the physiologic continuity of either the main right or left branch of the A-V bundle which brings the contraction stimulus from the auricles to the ventricles. The stimulus, then, can pass directly to only one ventricle through the intact branch, and this curious curve results from the delay in the contraction of the other ventricle, which must perforce receive its stimulus from the first one. The direction of the waves of the Q-R-S group is supposed to indicate the ventricle which first contracts, and therefore which has the intact bundle branch. Records A and B show a lesion of the right bundle branch by the chiefly downward deflection during the Q-R-S group of lead 3, while record C denotes a lesion of the left branch by the chiefly downward deflection of Q-R-S in lead 1. Other records are obtained which show what are taken to indicate incomplete lesions of various sorts.

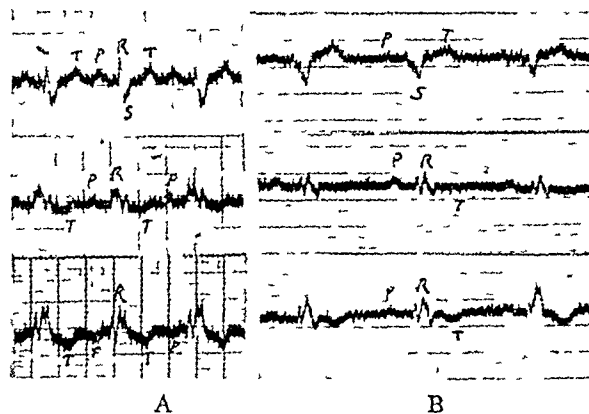


FIG 6—Atypical records of bundle branch lesions

It is theoretically possible that a very small lesion which happened to involve the region of a bundle branch could cause this abnormality of the curve, but it would be a rare occurrence by the law of chances, for the bundle branches are small in relation to the size of the heart. The clinical condition is usually found to depend upon a quite widespread disease process which involves in its course the special area traversed by one of the bundle branches. It is a disease involving endocardium and myocardium in a chronic sclerotic degeneration, and beneath the endocardium it happens to destroy more or less completely one of the bundle branches. Hearts giving this sort of curve are very rarely able to carry on the circulation normally.

Sometimes curves are found like those of Figure 6, with wide Q-R-S, with much notching

and with very small excursion of the waves. These are from hearts with a similar pathology to those giving the larger waves of the last figure but the disease is perhaps more extensive and the physiologic condition of the muscle not so good. Record B of this figure is from the same patient as Record C of Figure 5 but taken a few weeks later when the patient's condition was not so good.

Figure 7 shows another type of abnormal curve that is obtained the characteristic features being the small size of the excursions of all of the waves, and yet there is no notching or abnormal width of the Q R S group as in the last

main long in a state of good compensation, if they ever reach it. Such of these hearts as I have seen at autopsy show a diffuse fibrosis, involving only the muscle and not the endocardium.

There is one other wave complex to which I wish to call to your attention, seen in Figure 8. The typical features of this are in the T wave, which curves very sharply and deeply downward from the base line of the record in lead 1 or lead 3, and while lead 2 also is turned downward it may or may not have the typical upward convexity which is shown in lead 1 or lead 1. This sort of T wave is found after a branch of a coronary artery has been stopped by a thrombus, or the artery has been excessively narrowed by disease so that the muscle which it supplies has undergone degeneration. These patients are usually restricted in their ability to exercise by precordial pain and many of them have attacks of angina pectoris. But this typical curve is not found in all patients with precordial pain, and therein lies its importance for those who show it have an area of heart muscle that is scarred.

The finding of one or more of these electrocardiographic changes is of greatest value in helping us to decide upon the condition of the myocardium of the ventricles. When they are present we may feel quite certain that the muscle is diseased. We do not feel that the different abnormalities which have been described are so much the result of different degrees of myocardial involvement, as they are of a different location of the process. Subendocardial disease tends to produce notching and increased duration of the Q R-S group (Figures 3 and 5) and may also produce an abnormal T wave. Disease which is diffuse but does not affect the subendocardial layers may cause only a change in the P wave or may cause a small size of all of the waves (Figure 7). If a diffuse process involves a branch of the A V bundle then the peculiar wide notched Q-R-S group appears with small excursions (Figure 6) while a less extensive disease affecting the bundle branch will cause a wide notched Q-R-S with large excursions (Figure 5). The focal degeneration which follows coronary occlusion will, if it occurs in certain areas, cause the peculiar sharply downward T wave (Figure 8), while if it occurs elsewhere it may cause another abnormality.

On the other hand we are unable to say definitely that the finding of a normal electrocardiogram is an indication of a normal myocardium. This must obviously be so for there may very possibly be a certain subminimal disease which is not able to influence the electrical reactions of the muscle. Just as kidneys may be found to excrete such substances as urea and uric acid without any difficulty and yet may be unable to excrete phenolsulphonephthalein normally, it is possible that the heart may be able to produce a normal electrical current and yet may not be

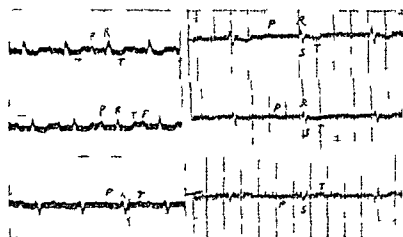


FIG 7—Another type of abnormal record

figure. The T wave in these records is always abnormally inverted in my experience. These are curves of hearts with a diffuse pathology not involving the bundle branches or the Purkinje tissue to any extent and I believe that these waves are small because of the poor physiologic condition of the muscle. Sometimes the waves will increase in amplitude with improvement in the patient's condition, sometimes they do not so increase, and the patients who fail to show this increase with improvement do not tend to re-

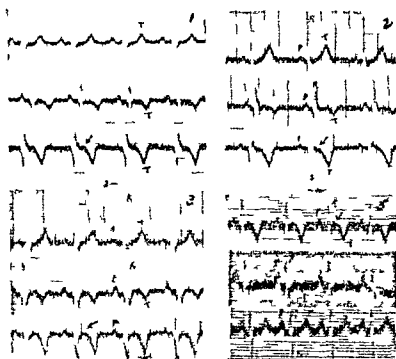


FIG 8—The abnormality of the T wave which results from occlusion of a branch of a coronary artery is indicated by the arrows

able to contract with its normal strength. Different functions of any organ may be impaired to a different extent by the same disease. How exacting a test the electrocardiogram may be is a question which cannot be decided finally until a tremendous amount of autopsy material has been reported. We are examining at present a series of eighteen hearts of patients whose clinical records and electrocardiograms have been collected at the New York Hospital, trying to make a beginning of this matter. The examination of this series of hearts is not yet completed, but it has gone far enough to make me feel that it is safe to say that when a heart gives a normal electrocardiogram, when it does not show any of the abnormalities which have been mentioned, then there is but a very little disease of the ventricular muscle, an amount that can only be demonstrated by a thorough search of many sections. This amount would not be expected to cause symptoms of cardiac insufficiency if it were the only abnormality in the heart, because of the large margin of safety or reserve power in the normal heart, and would scarcely add more than a little bit to a handicap from some other cause, such as valvular disease.

This latter opinion is in accord with clinical experience also, for it is an uncommon event to find a patient with symptoms of cardiac insufficiency who does not have either an abnormal electrocardiogram or some other demonstrable cause of circulatory embarrassment, such as valvular disease or high blood pressure—and yet it is an occasional occurrence.

The electrocardiogram, used in conjunction with the symptoms and with the older methods, palpation, percussion and auscultation, and sometimes aided by the X-ray should serve to correct our clinical diagnosis of myocardial disease, and to reduce some of Cabot's 52 per cent of error due to diagnosing myocarditis where it is not. I may cite in this connection a series of thirty cases in my experience in whom this clinical diagnosis was made after a careful consideration of the clinical symptoms and signs which have been enumerated. Of this group twenty-two cases gave electrocardiograms showing one or more of the abnormalities due to myocardial disease, while the remaining eight cases gave normal records.

The method should also help to discover some of the 26 per cent whom Cabot found to have myocardial disease, although it had not been diagnosed before death. This error arises from two main reasons: either there is a coincident valvular disease or renal disease to which all of the symptoms and signs are attributed, or the symptoms and signs may not be distinct enough to justify the diagnosis. Abnormal records are often found in both of these classes of patients, so that we have here a means of deciding which of these patients surely have myocardial disease, and which of them probably have not.

## OCULAR SYMPTOMS OF WOOD ALCOHOL TOXEMIA

By S LEWIS ZIEGLER, M.D.,  
PHILADELPHIA, PA

THE wood alcohol orgy that swept over the United States during the first six months of enforcement of the National Prohibition Amendment was simply appalling in its toll of sudden deaths and blindness, but it had a notable value in educating the public. The newspaper notoriety which it engendered drove the conscienceless profiteer out of business or into jail and scared the surreptitious toper into a forced abstinence.

Methyl alcohol was once a nauseous compound, but through refinement of the process of manufacture it is now made as clear as ethyl alcohol. It looks, tastes and smells like grain alcohol and has often been used as a beverage by the confirmed drinker who is ignorant of its toxic effects. Its fatal cheapness has likewise tempted the unscrupulous or ignorant manufacturer to substitute it for grain alcohol as a menstruum in the preparation of extracts, essences, tinctures and other pharmaceutical products. In its pure state it is sold in bottles as Colombian Spirits, Eagle Spirits, Lion d'Or, Colonial Spirits, Hastings Spirits or Acetone Alcohol.

The late Dr Gruening, in 1910, demonstrated the presence of wood alcohol in the cheap wines, brandies and whiskies sold in the low resorts of New York's East Side. Analysis often revealed a methylic content of from twenty-four to forty-three per cent. He recommended that all beverages and pharmaceutical preparations containing alcohol should be carefully analyzed and their sale regulated by the restrictions of "The Food and Drug Act" of 1906.

In Pennsylvania, Dr Edward Martin, Commissioner of Health, has recently instituted a vigorous campaign against methylated spirits under the Act of July 17, 1919, by requiring all manufacturers of drugs for internal use and of toilet waters for external use to file an affidavit that the alcoholic content is pure grain alcohol and that no wood alcohol has been used in the preparation. The reputable manufacturers have been making an honest effort to eliminate tainted goods from the market, but the jobbers in barber's supplies and small retailers of toilet goods have been violating the law. Four arrests have been made under this law, their goods confiscated and prosecution instituted. Strange to say "medicated liniments" are exempted from this law. The penalty is a fine of \$500 for each offence, but there is no jail sentence.

The Chemist to the Department of Public Health of Philadelphia has recently found methyl impurities in bay rum, lilac and vio-

\* Read at the Annual Meeting of the Medical Society of the State of New York at New York City, March 23, 1920.

let waters, quinine and other hair tonics Wood alcohol is also used in cologne spirits, spirits of lavender, Florida water, witch hazel, balsam of myrrh, Jamaica ginger, peregoric vanilla extract, lemon extract and the essences of peppermint, anise, cinnamon and capsicum. It has often been employed to fortify such mild drinks as ginger ale, ginger beer and bottled cider, all of which can be bought at the corner grocery. It is the chief constituent of cheap "burning fluids" which are sold for use in the chafing dish and to produce heat in so called "Vapor-Bath Cabinets."

The most prolific source of supply has been the "anti freeze" mixtures used in motor vehicles which garage employees have stolen and recklessly sold to unwary victims. There is even a rumor that unscrupulous chemists are submitting denatured alcohol to fractional distillation in order to remove the benzine and wood alcohol, thus securing an impure ethyl alcohol which can be sold for drinking purposes.

The cheapness of wood alcohol and its unusual power of solvency have promoted its use in the arts. It is employed as a cheap diluent for varnishes and as a paint cleanser, it is mixed with shellac to stiffen the nap or straw in hats, it is also used to color feathers and to mix the paste of shoe blacking. It is usually sold wholesale by the gallon or barrel and costs about one-eighth the price of grain alcohol. Denatured alcohol is equally cheap. The United States Internal Revenue Department, on Dec 29, 1919, proposed a new formula for denatured alcohol, whereby 2 parts (instead of 10 parts) of methyl alcohol and  $\frac{1}{2}$  part of pyridin bases shall be added to 100 parts of ethyl alcohol. In some countries wood alcohol must be colored in order to indicate a distinction from grain alcohol. Fortunately, the largest American manufacturer of wood alcohol has recently changed the name of his product to "Methanol," so that hereafter no alcoholic suggestion will be conveyed. Nevertheless the law should require a poison label on every container and the reporting of any case of methyl alcohol poisoning, together with the source of supply.

In order to quickly determine the presence or absence of wood alcohol the test of Mulliken and Scudder has often been employed, but has not proved very reliable. It depends on oxidation by plunging a hot copper wire into a distillate made from the suspected liquid. A more practical test which can be easily applied has been recently devised by the Chemist to the Department of Public Health of Philadelphia Dr Wm C Robinson. He converts the wood alcohol by oxidation through potassium permanganate into formaldehyde and then adds it to milk and gently heats until a pink color develops. This test is so delicate

that 1/100 of one per cent of methyl alcohol will be revealed. It has not previously been published but I am using it here with his permission.

### QUANTITATIVE TEST

- 1 Take 100 cc of the suspected methyl alcohol and add sodium carbonate until it becomes alkaline.
- 2 Then add an equal volume of water.
- 3 Distill the solution.
- 4 Cool 100 cc of the distillate to 60° F and take the Sp Gr.
- 5 Table corresponding to Sp Gr will show percentage of alcohol by weight and volume.
- 6 Pour distillate into Zeiss immersion refractometer and ascertain from scale reading and reference table whether pure ethyl alcohol pure methyl alcohol or a mixture is present.
- 7 If both are present an empiric formula will furnish the percentage of each. (See last edition of Lerch's "Food Inspection and Analysis," p 782.)

### QUALITATIVE TEST

- 8 Redistill the remaining 100 cc of distillate (No 4 above).
- 9 Take the first 10 cc and add 3 cc of 1% solution of potassium permanganate.
- 10 Gently heat to 110° F and constantly agitate the vessel until the odor of ethyl aldehyde is perceptible.
- 11 If the solution decolorizes add more permanganate solution 1 cc at a time, until pink color is restored.
- 12 Add a few drops of commercial muriatic acid in order to precipitate the excess of permanganate (as brown manganese hydroxide) and filter.
- 13 Pour the colorless filtrate into a porcelain casserole and add 10 cc each of water, fresh milk and muriatic acid.
- 14 Heat mixture to boiling point with constant agitation until a bright permanent pink develops, which will occur if 1/100 of one per cent of methyl alcohol is present in the suspected liquid.

The lethal action of wood alcohol may be developed in three ways (1) by ingestion, (2) by inhalation and (3) by cutaneous absorption.

Ingestion is, of course the most common method. A single teaspoonful of the pure product has been known to cause blindness and an ounce to cause death. Different individuals are variously affected and an idiosyncrasy may increase tolerance. The acute toxic symptoms that usually follow ingestion are headache, dizziness, nausea, vomiting, abdominal pain, weakness of the extremities, chilliness, lark skin, marked physical prostration, delirium, convulsions, stupor and death. Blindness is usually noticed by the patient when the stupor begins to wear off. The acute

symptoms may be wholly absent and blindness ensue, or by prompt relief of the toxemia blindness may be averted

We must not overlook the more insidious cases of chronic poisoning from inhalation of the fumes of wood alcohol Buller and Wood have reported eleven such cases, Gruening two, Tyson three and de Schweinitz one I have seen one case whose history is briefly cited in this paper These cases usually occur in varnishers who use shellac dissolved in wood alcohol in order to varnish the interior of large vats or casks or else apply it in closets or closed rooms I have seen several cases of acute poisoning occur in this way, but they escaped serious ocular lesions through prompt treatment The fact that these painters can work in a tainted atmosphere for long periods without succumbing to the poison only demonstrates that the system can acquire a certain tolerance for toxic substances Two of Tyson's patients inhaled the fumes of the methylated varnish which they were using to coat lead pencils My patient visited a china-cement works for one hour a day where he inhaled the fumes

Many cases of poisoning from cutaneous absorption have been reported These are chiefly from the application of toilet waters and liniments Even the individual who applies the preparation may suffer from absorption, as in the case of bath rubbers Buller and Wood report several such cases, but a typical one is related by Brown in the discussion of Fridenberg's paper on Wood Alcohol Amaurosis (*Am Oph Soc* 1910) A painter spilled a gallon of wood alcohol down his leg, soaking his clothes and filling his shoes He allowed this to dry on his skin Toxemia and blindness of a typical nature promptly followed

The ocular symptoms of wood alcohol poisoning cannot be classified as typical Vision is often seriously impaired Blindness may be early, sudden and complete Marked recovery often occurs, which sometimes is permanent but more often gradual failure and ultimate blindness ensues This history of variable vision with nausea and vomiting is typical enough to make us suspect wood alcohol toxemia If the visual loss is more insidious it is more difficult to make an accurate diagnosis

The objective symptoms are a sluggish, dilated pupil which may or may not react to light or convergence, scleral congestion, deep pain on rotation of the globe, tenderness on finger pressure and occasionally a temporary paresis of the extra-ocular muscles

The optic nerve-head shows many variations from normal, but the appearance is not characteristic The earliest conditions recorded are neuro-retinitis, retrobulbar neuritis and sudden sclerosis with dull white reflex The swelling of the papilla may reach 2D The

edema may spread over on to the retina and the edges may be quite reddish, with dark dilated veins and shrunken arteries This papillitis generally subsides in from one to two weeks The post-neuritic cases are more insidious They are often followed by a decided shrinkage of the nerve-head, sometimes in the form of a sector-like excavation, limited to a quarter or a half of the disc, glistening white in appearance or with bluish tint and revealing the lamina cribrosa in the excavation Fridenberg believes this appearance to be characteristic of this lesion The cases of immediate sclerosis of the papilla with dull white pallor and not the slightest appearance of shrinkage are equally typical

Birch-Hirschfeld, Holden and de Schweinitz hold the view that the ganglion cells of the retina receive the earliest injury Others believe that the optic nerve fibers are attacked first Animal experimentation is not wholly dependable since post-mortem degeneration is so rapid as to interfere with the accurate studies of these delicate tissues No reports of the many human eyes and brains recently subjected to this corrosive poison have been reported This is a waste of good material, for it ought to be possible to make an early diagnosis and arrange for a prompt autopsy

Fridenberg believes that both the ganglion cells of the retina and the optic nerve fibers are seriously injured by the formic acid which so soon develops This, like the bee sting, causes strangulation by the sudden serous infiltration and tissue swelling which follows exposure of this corrosive poison The first tissue it touches will be injured first When the serous swelling disappears vision will improve, but if corrosion of the deeper fibers has occurred there may be a shrinkage and permanent visual loss The injury is modified, therefore, by the concentration of the poison and its affinity for these delicate tissues

The visual fields usually show concentric contraction and central scotomata The scotomata may be multiple, being distributed over the field, but these are not always permanent

I will very briefly cite a few cases

Case I Housewife, 49, seen by me 10 years ago and previously reported Complete blindness followed a single drink, probably of Jamaica ginger Nervehead sclerosed, dull white, no shrinkage Notable because vision was recovered under negative galvanism and retained several years Not seen since, but reports are not favorable

Case II Male, 46, blinded by one bottle of fortified cider Nerveheads pale, edges distinct, slight central cupping Fields contracted Galvanism did not improve

Case III Male, 40, partial blindness following inhalation for one hour a day in a china-cement factory Slight pallor of disc

Fields contracted Recovery of fields and vision permanent under negative galvanism

Case IV Marine, seen by Dr Connole and Dr Daland, June 1919 Following a debauch, two men died and this one went blind Papillitis subsided in two weeks and vision became normal in two months Some contraction of fields Lime water and sodium bicarbonate freely administered Seen in France one year later, claimed normal vision at that time Not examined since

Case V Recently reported by Dr Mongal Had six drinks in twenty-four hours Liquor had a rusty, foul taste Severe neuro-retinitis Urine highly acid Had gastric lavage, intestinal salines, pilocarpin hot packs, calcium chloride and strychnin Vision practically normal at end of two months Fields still slightly contracted and central scotomata present

Methyl alcohol is one of the most deadly poisons that we meet with in commerce It is destructive to the delicate nerve tissues of the body, and especially of the eye The lungs, skin and kidneys eliminate the bulk of this poison, while the alimentary tract gets rid of a considerable portion That which is retained undergoes oxidation into formaldehyde and later into formic acid, both extremely corrosive poisons Formic acid is the end-product which is slowly eliminated by the kidneys Pohl, in 1893 first demonstrated the increase of this product in the urine In wood alcohol workers this amount is so marked that Gehling's solution is promptly reduced This chemical fact should always be borne in mind or sugar will be suspected and diabetes wrongly diagnosed as the cause of the trouble

Acidosis is a constant factor in these cases and should be overcome by the exhibition of alkalis Tyson demonstrated acidity of the aqueous humor in some of his cases Connole's patient (Case IV) improved under small doses of sodium bicarbonate given by the mouth and enteroclysis Vision improved and held for at least a year Mongel (Case V) had good results from calcium chloride which he considered both hygroscopic and alkaline

Acidosis may be so severe as to cause the Kussmaul type of breathing It may be demonstrated by Van Slyke's test for carbon dioxide in the blood Harrop has reported good results in a case he treated at Johns Hopkins Hospital, by injecting intravenously 400 to 500 cc of a 5% solution of sodium bicarbonate on succeeding days In using this method one should bear in mind that excessive alkalosis may cause grave irritation of the kidney and that as soon as the tests show a normal balance of the plasma bicarbonate no more alkali should be administered We already possess the knowledge that the edema of a bee sting can be reduced by alkalis If therefore we can relieve this acute acidosis

by alkalization, we can correspondingly lessen the destruction of delicate nerve tissues

Bongers believes methyl alcohol is returned to the stomach and can be removed by gastric lavage for several days We must decide, therefore, whether to use lavage, the stomach pump, or emesis through mustard or apomorphia

Alkaline enteroclysis is of great value because the absorbed water helps to dilute the poison and to wash it out of the system Jalap and saline purgatives may also prove useful Diaphoresis through hot packs or pilocarpin may be of great service while hot drinks encourage the same effort

Oxygen has been employed in methyl toxemia to relieve cyanosis and to support the heart It is an undetermined question whether oxygen might not increase the virulence of the poison by changing formaldehyde into formic acid but Hurnack believes this only occurs in slow oxidation, while in rapid oxidation carbon dioxide and water are formed I once recommended the use of potassium permanganate for this purpose as in opium poisoning, but this suggestion has not yet been tried out by animal experimentation

As dizziness sometimes occurs, together with certain head movements and uncertainty of gait some think the middle ear is involved The symptoms, however, are more suggestive of injury to the pituitary body

Hyoscin hydrobromate may be of service in relieving nervous symptoms but if it interferes with elimination it must be supplemented with pilocarpin to overcome this tendency

The tonic effects of strychnin have not proved serviceable in my hands Instead of using iodides to eliminate the toxins in the chronic stages I prefer to use Donovan's solution

The stimulating effects of negative galvanism are indicated to revascularize the pile disc and to restore the lost function of the optic nerve The case of partial blindness from inhalation herein cited (Case III) recovered normal fields and vision after a prolonged treatment with negative galvanism The patient with sudden sclerosis (Case I) after two months of total blindness recovered half vision and fields under the use of negative galvanism for one year

This should be administered very carefully Sixty volts are passed through the main shunt controller while the amperage is reduced by a secondary carbon rheostat to one milliamperes This current is passed for ten minutes and then reduced to one half a milliamperes for a second period of ten minutes These seances are continued daily or on alternate days Electricity is most useful where the nerve fibers have not been destroyed If this has already occurred as in the case of poisoning from fortified cider herein cited (Case II), electricity will yield no benefit

## NATURE OF HYPERTENSION\*

By HENRY A. CHRISTIAN, M.D.,  
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**I**N discussing increases in blood pressure it needs to be recognized that there occur both transitory and persisting rises in blood pressure. It is the latter that ordinarily is understood by the terms "hypertension," "hyperpiesis" or "high blood pressure." The former, being transitory, is of relatively little clinical significance, while the latter, as it persists over a considerable period of time, leads to various disturbances in the body and so is of much clinical importance. It is to be recognized that with the persisting type of high blood pressure the level of the blood pressure in an individual is not necessarily constant, in fact, it is subject to considerable variation and it would seem as if in these patients with high blood pressure there is greater instability in blood pressure than in individuals with normal blood pressure levels. In other words, with high blood pressure various conditions may bring about abrupt rises and equally abrupt falls in the pressure level. For example, with a patient quiet and calm the bringing up of an unpleasant topic for discussion may quickly elevate the blood pressure a considerable number of millimeters of mercury. This instability in the blood pressure level is of importance when we come to estimate the effects of therapeutic measures, inasmuch as its recognition may save us from concluding that a given change is the direct result of a given method of treatment.

Theoretically blood pressure is increased by the following factors

- a A decrease in the size of the peripheral blood bed,
- b An increase in the cardiac output,
- c An increase in the total volume of blood,
- d An increase in the viscosity of the blood

At the present time most observers consider (a), that is, a decrease in the peripheral blood bed, as the most important factor in causing hypertension, while a relatively few observers regard (c) namely, an increase in the total volume of the blood, as the chief factor. Very little stress today is put upon (b) and (d) as important factors in bringing about the hypertension.

I will discuss first increases in the total volume of the blood as a cause of hypertension, though this is the explanation less frequently given for hypertension. The following evidence has been adduced in favor of an increase in the volume of the blood as a

cause of hypertension (1) It has been shown that an excessive fluid intake will cause an increase in blood pressure, particularly in patients who already have a blood pressure above normal. This fluid intake, however, has to be very considerable and is greater than probably plays any significant part in the average case of hypertension. (2) In a certain type of acute nephritis there is available evidence indicating that there is an actual increase in blood volume accompanying an increase in blood pressure. This evidence is indirect evidence depending upon the finding of a decreased amount of dried residue, a decreased specific gravity, and a change in the refractive index of the blood as indicating that the fluid content of the blood has been increased. This is in a type of acute nephritis in which there is little or no oedema but an abrupt rise in blood pressure, and a feeling of the subcutaneous tissues as if they had become tense without there being any demonstrable edema. This type of acute nephritis was observed under war conditions and has been studied in this way by some of the German investigators. In other types of nephritis no such evidence of an increase in blood volume has been obtained, particularly is this true of forms of chronic nephritis, in which group there even has been evidence of the opposite, namely, an increased concentration of blood with a probable decrease in volume. It is to be realized that all methods, both direct and indirect, for measuring blood volume are unsatisfactory in that there is considerable possibility for error in the method, and no observations on blood volume at the present time can be accepted as conclusive, but so far as they go they are rather against there being any very general occurrence of increased blood volume in cases with high blood pressure. (3) An increase in the sodium chloride content of the blood has been stated as a cause of hypertension, and it has been thought that the increase of sodium chloride leads to an increased blood bulk on account of changes in osmotic pressure. Further therapeutic evidence of this has been claimed from the results of a markedly decreased salt intake in the food leading to a decrease in the blood pressure. The earlier work of a group of French observers and the more recent work of Allen in this country have favored this view. However, there seems to be considerable doubt in regard to both the constant presence of an increased sodium chloride blood content in cases of hypertension and as to whether such an increase by osmotic changes actually increases the blood volume. The evidence from therapeutic effects of salt reduction are not very conclusive.

\* Read in the Symposium on Hypertension at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4 1921.

My colleague, Dr. O'Hare, has recently had charted forty six patients, all showing hypertension, on the basis of the sodium chloride content of their blood. In this chart he has begun in the lower left hand corner with the level of sodium chloride in the patient who showed the smallest sodium chloride content of the blood of the entire series and he has arranged these patients serially in accordance with the increasing salt content of their blood until the highest salt content is represented by a patient charted in the upper right hand corner of the chart paper. On this same chart he has superimposed charts of the upper limit of blood pressure for each case phenolsulphonephthalein excretion and the amount of urea nitrogen in the blood. Approximately one half of these cases have a normal or less than normal sodium chloride content in their blood and approximately one-half have a sodium chloride content greater than normal. Those patients with a normal or less than average normal sodium chloride content of their blood have a normal, that is a high phthalein excretion, and a normal that is low figure for blood urea nitrogen. As the various curves are followed from left to right the rise in the curve of sodium chloride content of the blood after it passes the average normal is accompanied by a gradual decrease in the output of phthalein and a gradual increase in the amount of urea nitrogen of the blood. These last two determinations indicating a decreasing efficiency of renal function. In other words the higher sodium chloride blood figures occur in cases with evidence of considerable disturbance in renal function whereas the low sodium chloride figures are in cases with normal renal function suggesting that the increase in the sodium chloride content of the blood depends upon a disturbance in renal function for various substances including sodium chloride. In regard to the blood pressure actually the patients with the normal or decreased sodium chloride content of the blood have a higher blood pressure than the group with an increased sodium chloride content of the blood and evidence of a decreased renal function, though all of these cases have a blood pressure above normal. This evidence is against the view that the sodium chloride increase is a direct cause of the increase in blood pressure inasmuch as it is most evident when renal function is poor and is absent when renal function is good, although blood pressure is high in both groups.

Returning now to the other view the one more generally held, that the increase in blood pressure results from a decrease in the size of the peripheral blood bed we need to recognize that the peripheral blood bed may be de-

creased in size by (1) a functional vaso constriction (spasmodic contraction) of the vessel walls, (2) by an organic lesion of the vessels which narrows their lumen, and (3) by an organic lesion of the vessel wall which interferes with a compensatory dilatation such as takes place under normal conditions when local vascular constriction is brought about to decrease the blood supply to a given organ.

All observers who hold to the view that the size of the peripheral blood bed is the cause of hypertension consider that the change takes place in the small and not in the large vessels. Clinically we recognize under the term "arteriosclerosis" demonstrable thickening and other changes in the blood vessels accessible for examination. These are the larger vessels and clinical observation tells us that marked arteriosclerosis in this clinical sense may exist without there being any increase in blood pressure. Furthermore we find cases with increased blood pressure in which we cannot demonstrate any arteriosclerosis in this clinical sense. Very frequently we do find both arteriosclerosis and high blood pressure, but it seems evident that there is no necessary causal relation between arteriosclerosis of these larger vessels and hypertension. This is the basis for the assumption that the change must take place in the smaller rather than the larger vessels and this assumption is borne out by some cases where pathological examination has shown in patients, who had hypertension during life, very considerable thickening and other changes in the small blood vessels generally distributed over the body and no extensive changes in the larger arteries.

Those observers who consider that hypertension is the result of a decrease in the size of the peripheral blood bed may be divided into two groups, one thinks that this change always is the result of nephritis and the other considers that in addition to nephritis other causes can bring about the change. The latter view is the one more generally held at the present time because of the fact that newer methods of studying renal function have shown the existence of a considerable number of cases of hypertension in whom there was no evidence of renal insufficiency but in which at some time when on renal insufficiency would develop. Even those who consider that nephritis is the cause of hypertension do not at the present time think that the hypertension is a direct result of the renal lesion interfering with the circulation within the kidney, because obstruction to the renal circulation experimentally fails to cause a rise in blood pressure. They consider that the hypertension is some indirect result of the nephritis,



perhaps from some retained toxic substance which causes either a vasoconstriction through the vasomotor nerve mechanism or by direct action on the vessel wall, or an actual lesion of the wall of the small blood vessels generally scattered through the body. This same view that the cause is some indirect one working on the small blood vessels is held by those who, while admitting nephritis as one cause, believe that other causes lead to hypertension.

Some think that the change is nearly entirely functional, namely vascular spasm, and adduce as evidence in favor of this the type of case in which, without a failing circulation, the blood pressure falls and may even return to normal, and the fluctuations that take place in the blood pressure in many of these cases. However, autopsy has shown that in some cases there do exist organic lesions of these smaller vessels. It may be that in the early stages the change is functional and that subsequently organic changes take place, possibly in some of these cases the organic changes result from the continued hypertension.

In addition to nephritis it seems reasonable to consider that some changes in the glands of internal secretion may cause a hypertension. It is recognized that certain conditions, for example, thyroid disturbances, lead to increase in blood pressure. Furthermore, there is some evidence of an association of ovarian disturbances with hypertension. It does not seem justifiable, however, to explain all hypertension by changes in the glands of internal secretion and I would not assent to that view as supported by the type of individual who at the present time is willing to explain almost everything on the basis of endocrine disturbance.

It needs to be recognized, I think, that infections of various kinds may lead to vascular lesions and that these probably play a part in hypertension. It is very evident that nervous excitement can increase blood pressure, and it is probable that continuous nervous excitement, business strain, etc., may be an important factor in hypertension. Perhaps in some cases there is some sort of primary disturbance in the blood vessels themselves which leads to hypertension. All of these causes are supposed to cause hypertension by narrowing the peripheral stream bed through changes in the small blood vessels. From what I have said, I think it seems evident that not one but several causes may bring about an increase in blood pressure and explain our cases of hypertension.

To sum up the evidence, it seems to me that we can consider that hypertension, though occurring with nephritis, has other

causes than renal insufficiency and that the finding of hypertension by no means justifies a diagnosis of nephritis. The causes of hypertension are probably multiple and the mechanism is not always the same, but is various. In final analysis the most probable mechanism of hypertension is a narrowing of the peripheral blood bed. It seems to me that hypertension is not to be regarded so much as a disease as an evidence of disturbance in the cardiovascular mechanism—a disturbance mainly in the smaller peripheral vessels, much as fever is regarded as an evidence of infection. Certainly if hypertension has more than one cause, it is not likely that any single form of treatment will be successful in all cases.

### TREATMENT OF HYPERTENSION

By W D ELSEVER, M D,  
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THERE can be no established treatment of hypertension for it is neither a disease of itself nor a sign of any single malady. One must seek the cause before deciding on treatment. Such procedure is often difficult, for many lay people believe hypertension is a disease and expect direct action against it. This situation has resulted from telling patients their blood pressure readings and using these readings as a guide to treatment. Actually, hypertension is a desirable compensatory factor in a vicious circle and, the cause having been controlled, the pressure should not be disturbed except in real emergencies. The anxiety of lay people regarding their blood pressure shows the undue emphasis they place on this particular physical sign. Blood pressure psychoasthenia tempts the doctor to use improper treatment, and, relief not forthcoming, tempts the patient to resort to quackery which promises the undesirable and impossible. Doctors have themselves to thank for the prevailing blood pressure bugaboo. I believe blood pressure readings should not be told to patients.

Sir James MacKenzie questioned if the stethoscope had not done as much harm as good. The value of the sphygmomanometer is even more in doubt. It is more accurate than the skillful fingers of our fathers, but its spectacular use and the incorrect inferences drawn from its readings have been mischievous.

Hypertension may be either transient or permanent. Undoubtedly transient high pressure may be purely functional, but hypertension is rarely diagnosed in the absence of organic defects.

\* Read in the Symposium on Hypertension at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn May 4, 1921.

### TRANSIENT HYPERTENSION

Transient hypertension is often of little consequence. James P. O'Hare (1) reports a maximum rise of systolic pressure of 52 mm. and an average rise of 30 mm. due to excitement. The writer has observed a fall of systolic pressure of 50 mm. within five minutes, during which time the patient sat quietly and repeated readings were made. Meanwhile the patient recovered from the excitement associated with a strange procedure but all other factors were apparently constant. Manifestly such hypertension is evidence of nervous instability and, of itself, calls for no treatment. Exercise also produces a rise of pressure which is of no moment.

### MILD HYPERTENSION

Hypertension lasting a few days and relieved by rest or elimination is of great importance. It suggests an early and perhaps curable stage of some disturbance, which, if allowed to continue, is likely to cause persistent hypertension and lead ultimately to death. Consequently all hypertension calls for a most searching investigation into the underlying causes. Marked persistent hypertension is a condition to be pilloried and endured but mild hypertension calls loudly for cure. Routine yearly examinations of people over forty have great prophylactic value.

We all will agree that every patient, whatever the nature of his trouble, deserves careful investigation but mild hypertension cases demand the most thorough examination possible. This is true because the etiological factors are commonly obscure and insidious; they are likely to involve the patient's daily routine and habits, and evidence of them may be found in any or many parts of the body.

The part of a complete examination which in my opinion, is most neglected in modern practice is history taking. An active general practitioner may be treated with some leniency if he fails to take an exhaustive history of every case, but when he undertakes to guide a hypertensive patient or when the patient is referred to a consultant there is no sufficient excuse. It is deplorable that some specialists in their attempt to care for many patients, relegate history taking to an employee, perhaps to one without a medical education. There is no part of an examination which requires such broad medical knowledge as the obtaining of "the truth, the whole truth, and nothing but the truth" about a patient. It is not enough that one learns the names of the diseases which the patient and his relatives are said to have had; one must know the symptoms, course and result of such sicknesses in order to recognize their present significance

and to correct any gross errors in diagnosis. It is not enough to have a statement of the patient's complaints; one must also know that certain symptoms are absent and that none have been overlooked. The functioning of every system in the body must be inquired into. One must obtain an intimate knowledge of the patient's pleasures and troubles, his habits and tendencies, even to the point of knowing what, how much and how he eats, how much he sleeps and when and how he plays. In fact the patient must disclose his personality and life even more completely than he would to his father confessor. But he will not do it to a clerk nor is he certain to do it to an assistant physician. There is a personal equation between the patient and the doctor of his choice which, when fortified by manifest interest and careful examination, leads to most confidential relations and to faithfulness in carrying out treatment. The old-time family doctor had access to all family peculiarities and secrets. Modern medical practice with its mechanical and departmental features, is in danger of losing much valuable ground which our medical fathers occupied. Be it as it may in other diseased states, one cannot hope to guide the majority of his early hypertension cases from established faults in living to a regime which will guard against future disease, unless he acquires the full confidence of his patient. No matter who does the laboratory work so long as it is correct, part of the physical examination can be satisfactorily delegated to another, but intimate personal contact between doctor and patient is necessary. Hence this plea for history taking by the doctor himself is an important part of the treatment of hypertension.

If early sclerosis is a family trait, the prognosis is correspondingly poor but treatment is indicated just as in patients with good inheritance.

All forms of toxemia should be controlled. Metallic poisons such as lead, should be avoided. Drug poisons as alcohol and tobacco are to be used moderately if at all. Focal infections are to be cured. Syphilis, if present, must receive vigorous treatment.

All sources of metabolic errors must be controlled. These errors are perhaps the most difficult to treat of all the causes for hypertension. Under this head come regulation of the intake of food and drink, of the motility of the intestines and evacuations of the bowels, of the amount and quality of the urine of the patient's work, play and sleep and of his mental burdens. All phases of his life must be known to be right or corrected if wrong.

Meals might better be postponed than eaten when tired or anxious or in a hurry. Housewives should sit through meals, even though less palatable cold food is the alternative. Properly chewed food is warm before it leaves the mouth. Meal times should be periods of mental recreation and physical rest. Teeth, either natural or false, must be sufficient in number and so placed as to make mastication easy. Chewing must be sufficient to mix the saliva and the food, thus initiating starch digestion uniformly throughout the bolus before it is swallowed. This advice applies especially to semi-solid food, and notably to milk which, if thoroughly mixed with saliva, will be so honeycombed that only fine curds can form in the stomach. If food unevenly mixed with saliva is swallowed an unnecessary burden is put on the stomach and intestines and metabolic errors may occur. Feeble peristalsis is likely to result if one comes to the table tired or if vigorous activity is resumed quickly. Intestinal stasis means opportunity for fermentation and putrefaction, and hence for so-called auto-intoxication. Constipation affords added opportunity for the formation and absorption of toxic products. The amount of fluid taken with meals is important for more than two glassfuls is likely to mean that the unchewed food will be washed into the stomach and the digestive juices will be handicapped through dilution. Regularity at meals is desirable.

The quantity of food eaten is more important than the kind. With hypertension, 25 to 30 calories per kilogram of body weight is often sufficient. It is desirable that the patient be kept at 5 to 20 pounds below his optimum weight in health, but inanition must be avoided. Any excess of flesh is to be controlled through restriction of food or through occasional purgation and fasting. Two compound cathartic pills at night and the omission of the next three meals will frequently be followed by a fall in blood pressure, a noticeable relief of associated symptoms and a loss of weight.

Protein is the source of most of the food derivatives which are believed to be toxic and consequently it should be limited to the minimum necessary for good nutrition of the cells of the body. One gram per kilogram of body weight is usually the desirable amount. The remainder of the diet is divided between carbohydrate and fat according to the taste and digestive power of the individual. Part of the protein may be and probably should be in the form of meat. The color of the meat is of no practical importance, excepting that red meat is desirable if the patient is anemic. It is wise to eliminate extractives, as meat soup

and meat gravy, condiments, as horseradish, mustard and pepper, and all glandular foods, as they put unnecessary burdens on the kidneys. Fried foods, rich foods and fresh baked stuffs are to be restricted as they are difficult of digestion.

An ordinary diet for a mild hypertensive patient is as follows

#### BREAKFAST

- 1 portion of fresh or cooked fruit
- 1 egg, or 2 tablespoonfuls of cooked cereal, or 1 portion of dry cereal
- 1 or 2 slices of bread, (toasted if desired)
- 1 cup coffee (if desired)
- 2 teaspoonfuls sugar
- 4 oz milk
- 1 pat butter
- 1 glass water

#### DINNER

- 1/2 portion of meat or fish
- 1 potato (medium size), or rice or macaroni
- 1 or 2 portions of light vegetables
- 1 slice bread
- 1 pat butter
- 1 portion of any of the following fruit salad, ice cream, custard, corn starch, tapioca or simple pudding
- 1 glass water

#### SUPPER

- 1 portion of any of the following cream soup, boiled rice, macaroni, cereal, bread and milk (milk toast), vegetable salad, fruit salad, one egg, one potato
- 1 or 2 slices of bread
- 1 pat butter
- 1 portion of fresh or cooked fruit
- 1 piece of plain cake or cookie
- 1 glass water

This menu furnishes approximately 70 gm of protein and 2,000 calories. It is made purposely somewhat elastic for the object is to develop the habit of eating moderately of well balanced, wholesome menus. To this end it is well to ask the patient to record, at the end of each meal, the kind and quantity of all food eaten. Weekly discussions of this record will reveal the dietetic tendencies of the patient and will result in his acquiring the ability to choose and a liking for a low protein, low calorie diet. If the doctor studies the patient's habits of eating and his environment, the diet can be harmonized with his appetite, his purse and his cook.

Sufficient water should be available for the various chemical processes and for the solution of food and waste products which must be transported from place to place. Unless the kidneys are defective, enough water should

be taken to keep the quantity of urine above 1,500 cc and the specific gravity below 1.020. If the urine is highly acid the administration of an alkali as  $\frac{1}{2}$  dram of bicarbonate of soda four times daily, will hasten diuresis and will often relieve annoying symptoms.

The patient's days should be regulated so that he leads an even, uneventful life. A variation by or on the sea is often helpful but rarely necessary. He should not be idle but should work a moderate number of hours being careful to avoid either physical or mental strain. If stress is necessarily associated with his occupation it should be changed. The day should include two or three hours of recreation preferably physical and preferably out of doors. Each day there should be at least eight hours sleep indulged in if necessary.

The patient should be shown the unreasonableness of his imaginary troubles and the causes of his real cares should be corrected if possible. In case anxiety persists the patient's attention should be fixed on agreeable ideas more alluring than those causing the anxiety. This can usually be done best through recreation with friendly companions, as in golf fishing gardening, walking or bowling.

That hypertensive patients be told once how to regulate their lives is not sufficient, the doctor must frequently review in detail the patient's daily routine meticulously calling attention to his failures and readjusting, if possible, those requirements which are burdensome. Through such close co operation the best results are obtained.

#### SEVERE HYPERTENSION

When after thorough treatment it becomes evident that hypertension is permanent, the therapeutic problem becomes one of maintaining compensation and avoiding complications. All the treatment suggested for mild hypertension applies with added force and some additional measures are indicated. Lower caloric values of the diet for short periods may be useful, as more frequent and prolonged periods of starvation or the milk diet of Karrel accompanied by rest in bed. Limitation of protein below 1 gram per kilogram of body weight, or even total abstinence from protein may be tried when there is nitrogen retention. However such dieting is not likely to alter the blood pressure and should be of short duration only. One cannot long retain the ability to fight any sickness if his protein intake is markedly restricted.

The quantity of salt should never be excessive perhaps not more than 2 gm per day but its limitation must depend on the ability of the kidneys to excrete it. Similarly water,

however great the body's need for it, must not of itself overtax the kidneys. A safe practical rule is to give no more water by mouth than is excreted as urine and fluid stools. In case sufficient water is not taken by mouth rectal injections or Murphy drips of saline, soda or glucose solutions will supply water to the body and also wash the lower bowel. This procedure often gives marked temporary relief through interfering with absorption of toxins.

Continued watery catharsis has been advised, but its debilitating effects make it of doubtful value. Chronic constipation is best cared for by the drinking of a pint of water on rising, by ruffage in the diet, by mineral oil at night and after meals or by the regular use of mild vegetable cathartics.

Occasional bouts of diuresis are of value if the kidneys are still competent. These are produced best by drinking large amounts of water, by giving 10 grams of sodio-salicylate of theobromine, four times daily, for two or three days, or by one dram of sweet spirits of nitre every four hours.

The withdrawal by needle of 300 to 500 cc of venous blood is usually salutary and harmless.

Rest in bed for a few days or a week will overcome the effects of past overdoing and permit the elimination of accumulated waste matter. In general however, systematic daily exercise should be continued in sufficient amount to maintain muscle tone and a sense of well being. Exercise should not be carried to the point of exhaustion or the reserve power of the circulation will be diminished. Often a sense of fatigue is experienced on waking and is relieved by activity; it is believed to be due to deficient elimination.

Mental overwork is more to be dreaded than physical fatigue. Control of the patient's mental activity, settled as he is in the habits of a lifetime, demands the maximum of ingenuity and tact on the part of the doctor and the patient's associates. This phase of the treatment is much more difficult than drug therapy. It, together with dietetic treatment comes nearer to being specific than anything else we do for hypertension. Failure to make sufficient use of psycho-therapy results frequently in the patient's resorting to various therapeutic fads, which might better be replaced by intimate personal relations between doctor and patient. In our enthusiasm over organic changes and mechanical methods we have slighted psycho-therapy. The modern tendency toward institutional practice magnifies this defect.

Water air and light baths and massage treatments are valuable if they soothe the

nervous system and favor elimination. They are especially useful when combined with the relaxing life and correct diet of a good sanatorium. They should not be attempted at home until the day's work is finished. Extreme degrees of temperature and prostrating treatments tend to precipitate complications, as myocardial failure and cerebral hemorrhage.

Clothing should vary according to climatic conditions. This means that wool, which is the poorest conductor of heat of all the usual fabrics, should be worn next the skin when the patient is exposed to the abrupt changes of the temperate zone. Fineness of texture and varying weights will make such garments comfortable.

The drug treatment of hypertension is of comparatively little value. Iodine, usually in the form of iodide of potash, gr  $\text{V}$  t  $\text{i}$  d, is given because of its supposed ability to aid in the elimination of abnormal substances or to diminish the viscosity of the blood, but its effects are so slight as not to be plainly evident clinically except in gummatous deposits. Aconite, usually as the tincture, m  $\text{V}$  or more, every four hours, is the best drug for maintaining the blood pressure at a lowered level. It acts through vagal slowing of the heart and vaso-dilation. However its use is rarely justified for, when nutrition, elimination and bodily activities have been regulated, the blood pressure falls to the optimum point for that patient at that time. Except in emergency it is

wise to beat down the blood pressure. The nitrites cause a fall of blood pressure lasting from a few minutes to two hours, according to the preparation employed. If given three or four times daily, as is commonly done, there is no effect on blood pressure during most of the twenty-four hours. Such a kangaroo type of blood pressure lowering is of questionable value and usually is not intended. This emphasizes the fundamental therapeutic principle that drugs must be repeated before the end of their physiological action if sustained effects are to be produced. It is interesting to note in this connection that O'Hare (1) found in a majority of the hypertension which he tested

administration of 1/100 or nitroglycerine under the influence of a primary rise of varying from 4 to 26 mm (mm), and a rise of diastolic from 0 to 22 mm (averaging 10 mm) in pressure occurred simultaneously of the face and

After 15 to 20 minutes there was a fall in systolic

and 7 mm in diastolic pressure. This secondary fall, occurring sometime after the period of flushing and throbbing, is believed by O'Hare to be dependent, to a considerable extent, on rest and quiet. Evidently nitrites do not always produce a fall of pressure if hypertension exists. Their disturbing action in the circulatory apparatus would no doubt be harmful if maintained over considerable periods of time, while rest and quiet may be continued indefinitely without conceivable damage. The peculiar field for nitrites is angina pectoris.

Nerve sedatives, such as bromides and benzyl benzoate, will reduce blood pressure for they prolong the period of sleep and calm the waking hours. They should be given steadily, three or four times daily, rather than at bed time only, for their effect is as much to be desired by day as by night. The dose should be adjusted so as to produce eight or ten hours' sleep in each twenty-four hours.

If hypertension is associated with disease of the heart, kidneys or brain, treatment of such complicating disorders is indicated and may call for other drugs. Digitalis is often of great value.

The high frequency or d'Arsonval current will diminish hypertension. Accompanying the fall in pressure are local heat, flushing, diaphoresis and general relaxation. Presumably the fall in pressure is due to increased elimination and to rest, but, as with all dramatic treatments, the psychic aspect is not to be overlooked. In the course of a half hour treatment the pressure may fall 20 mm and this fall may persist for a day. Maintenance of a lowered level of blood pressure after several weeks of high frequency treatments is due, in all probability, to associated treatment such as regulation of activity and diet. The high frequency current is useful in emergencies, but it should not be used as a substitute for regulation of the patient's life. Radium also is said to lower blood pressure.

We are in the age of endocrinology but as yet one cannot see clearly through the haze of obscure unproved theories. In the future endocrinology may teach us much about hypertension. Just how the endocrine glands operate to influence arterial tension is uncertain. As yet there is no reason to believe that functional disturbances of the endocrine system depend on causes other than those already suggested as influencing arterial pressure, consequently one would regulate the underlying causes of disturbed metabolism, such as overwork and overeating, rather than attempt to dominate the mechanism through which it makes itself evident. One should treat the

cause rather than the symptoms. Although it is a fact that moderate doses of powdered thyroid gland, perhaps gr  $\frac{1}{2}$  after meals, will sometimes be followed by fall of pressure, yet it is questionable whether such treatment is on a higher plane than the administration of nitrite or high frequency electricity.

Hypertension is frequently associated with the menopause. Perhaps a deficiency of corpus luteum substance permits hyperactivity of the medulla of the supra-renals or possibly other endocrine glands are involved in the disturbance. Many attempts have been made to control the changes associated with deficient ovulation. The menopause has been hurried by X-ray and radium treatments and by hysterectomy, but lowering of pressure does not follow regularly. A. H. Hopkins (2) has administered corpus luteum extract intramuscularly. This procedure has been followed by strikingly good results in the nausea of pregnancy, which also may be due to deficiency of corpus luteum substance. Until this treatment has had a longer trial, judgment must be withheld. The fact that hypertension is often absent at the menopause and, when present, is frequently followed by chronic hypertension leading finally to death by heart failure, uræmia or apoplexy suggests that in many cases at least it is dependent on the same causes as hypertension in men.

Most of the causes of hypertension and the difficulties in its treatment are attributable to intemperate habits of living, firmly established at the time hypertension develops. The strenuous and unbalanced lives of Americans are noteworthy in this connection. The prevention of hypertension depends largely on the training of future generations to cultivate moderate and simple modes of life. This truth has been known for centuries, yet we do not seem to comprehend its importance. The drift of modern times tends strongly towards increased specialization and intensification of effort. Yet the Greek philosophers remarked the virtue of "stopping short at the point of moderation in all indulgences" and Confucius wrote "the highest goodness is to hold fast the golden mean. Amongst the people it has long been rare."

Truly, moderation is the greatest of all virtues.

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## STUDIES OF HUMORAL ANTIBODIES IN TUBERCULOSIS \*

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**S**erology, one of the many branches of biology, has attracted considerable attention ever since Ford and Wysikowski in 1875 demonstrated that when bacteria were directly injected intravenously in animals they were not eliminated by the kidneys, but were destroyed and disappeared somewhere in the body. These same authors in the following years demonstrated that when bacteria were mixed with the serum of fresh blood the organisms were destroyed. Nothing important appeared until in 1888 Nuttall carried the above observation further bringing out one important fact that the serum contained two distinct substances, one thermostable and the other thermolabile. Buchner in 1891 brought out the complement or alexin. The Pfeiffer phenomenon appeared in 1893. The latter led to the discovery of the agglutination by Gruber and Durham in 1894-1896, precipitin by Kraus in 1897, and complement fixation by Bordet in 1899. It is interesting to note that all these biological phenomena were the fruit of continuous and laborious study. Opsonins, agglutinins, phagocytosis and anaphylaxis were all discovered during the course of such investigations.

It is a hopeless task to review the vast wealth of material accumulated in the last twenty years on this subject. Volumes have been written on different reactions, on their specificity and physical and chemical properties, but up to the present we have no correct interpretation as to the mechanism of the reactions. Most of the workers in this field have branched off from the purely academic point of study to the study of fundamentals governing these reactions and have tried (without knowing the reaction itself) their application in clinical medicine. Kolmer, for one, has lately taken the former attitude, studying the fundamentals in the Wassermann reaction and the reagents used in this test. We hope that some of his researches will lead to some definite interpretation as to what takes place in the Wassermann reaction.

For the last seven years we have studied different problems in serology with the hope that we may add some new facts in clearing the hazy knowledge of the interpretation of this reaction after which it may be safely applied to the study of clinical tuberculosis. From time to time we have published papers dealing with antigens, antibodies and the

\* Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4, 1921.

mechanism of the reaction We have accomplished very little, but this is not discouraging, after all, we learn only by our failures In this paper we shall limit ourselves to the study of the three principal reactions precipitation, agglutination, and complement fixation, carried on with one disease, and that tuberculosis

#### FORMATION OF ANTIBODIES

The antibody formation is very likely a metabolic function resulting from physiological hyperactivity of the cells Such a phenomenon is not all limited to bacteria or bacterial derivatives like toxins, etc, and it cannot be looked upon merely as a complex mechanism existing for the primary purpose of protecting the body against infectious disease It can be demonstrated where any form of protein is injected in the animal body The formation of antibodies then, is a reaction to chemical substances entering the body from without or an abnormal development within the body caused by invading organisms, or by the changes in the chemical process as in the body The complex substances of bacterial toxin, foreign protein, etc, incite reactions which are to a greater or less degree specific, and usually very highly augment the defence of the body against the foreign substances The antibodies in question in all probability have no direct relationship with the antigen The two have a common quality in so far that they are without exception colloids Humoral antibodies as demonstrated by the agglutinin, precipitin and complement fixation are the overflow of the cells into the circulation There may also be cell activity without the demonstration of humoral antibodies

In order to make the study of greater value it was necessary to obtain sera having antibodies in large quantities which would not vary as to their titre from day to day Such sera were obtained by inoculating sheep first with dead human tubercle bacilli, and then injecting living human tubercle bacilli to which type they have relative immunity accompanied with the production of a small, negligible, pathological change The following was the method employed in obtaining such serum The animal was first tested subcutaneously with old tuberculin A preliminary intravenous inoculation of glycerin antigen was followed by a weekly intravenous injection of human tubercle bacilli, first with dead organisms, then with living organisms

The serum was studied for complement fixation antibodies and before and after a systemic reaction, for blood sugar, urea, creatinin and calcium Each reaction was followed by high

temperature, rapid respiration and dyspnea, but the titre of the antibodies continued to rise after each injection of human tubercle bacilli

#### BLOOD CHEMISTRY

After determining the normal temperature and blood chemistry in sheep which for the former was 104 degrees F and for the latter showed combined  $\text{CO}_2$  in the plasma, 50%, sugar, 50 mgs, creatinin, 19 mgs, creatin, 4 mgs, calcium from 73 to 9 mgs, and urea nitrogen 19.5 mgs per 100 cc of blood, we proceeded with the inoculations First glycerin antigen was used which was followed by dead and living organisms No changes in temperature took place after the first inoculation of glycerin antigen, and no change in the blood chemistry was noted with the exception of the increase of the urea nitrogen (from 19.5 mgs to 29 mgs) No changes were noted also after the inoculation of dead human tubercle bacilli Following the injection of living tubercle bacilli the only change that took place in the blood chemistry was an increase in blood sugar from 59 mgs to 74 mgs All other examinations were apparently the same as in the normal After the second injection of living organisms, which was followed by a general reaction with a temperature of 106 degrees F, the blood chemistry was as follows The sugar increased from 74 mgs to 75 mgs, urea nitrogen increased from 28.5 mgs to 59 mgs and the calcium dropped from 9 mgs to 4.7 mgs with no other changes On the following day the temperature increased to 106.8 degrees with the increase of sugar to 81 mgs, urea nitrogen decreased to 41.6 mgs and calcium dropped to 3.7 mgs Four days after the above examination the animal appeared to be apparently normal and with a normal temperature The blood chemistry showed an increase in sugar to 98.3 mgs and a drop of urea nitrogen to 33.5 mgs, the creatinin, creatin and calcium were about the same Two days after the preceding examination the chemical analysis of the blood revealed a further increase of blood sugar 119 mgs The creatinin and creatin were about normal Here an increase in calcium was noted (6.5 mgs) which indicated an attempt of the calcium to regain its normal metabolism A drop of urea nitrogen to its apparent normal was noted, no other changes occurred

Twelve days after the last injections 2 cc of glycerin extract antigen was inoculated intravenously This was followed with a rise of temperature to 108 degrees F The animal was dyspneic and very ill, refusing to eat The titre of the antibodies dropped a little but not appreciably The blood chemistry was as follows A drop of blood sugar from 119

mgs to 50 mgs and calcium from 65 mgs to 46 mgs, urea increased from 25 mgs to 37 mgs, combined CO in the plasma, creatinin and creatin were about normal. At this time a second inoculation of the glycerin antigen was made which was again followed with an increase of temperature, and a minor change in the blood chemistry was noted. The temperature, however, came back to normal much sooner than after the first inoculation of glycerin antigen. For sixty-three days no inoculations were made. On this day the animal was bled, the titre of the antibodies and the blood chemistry were studied. No changes in the titre of the antibodies were noted. The blood chemistry was the same as that of a normal animal and was as follows: Blood sugar 59 mgs, creatinin 16 mgs, creatin 4 mgs, calcium 46 mgs and urea nitrogen 12.5 mgs. The animal appeared to be in normal condition. Two cubic centimeters of an emulsion of living human tubercle bacilli were then injected intravenously. This was followed by a general reaction with a rise of temperature to 108 degrees F, dyspnea and the animal refused to eat. The blood chemistry was as follows: Blood sugar dropped 50% from 59 mgs to 25 mgs, a drop in calcium to 4 mgs and an increase in urea nitrogen from 12 mgs to 23 mgs.

From the foregoing study we may clearly see that during the process of immunization we have a gradual increase in the blood sugar accompanied by an increase of urea and a decrease of calcium after each general reaction. Such chemical changes took place when the injections were made regularly once a week. No study was made however to see what changes occurred in urine chemistry. If two weeks or more elapse between the injections of living or dead organisms we have apparently the same systemic reaction, but a different blood chemistry. Here the blood sugar drop of 50 per cent is noted. It is probable that this latter reaction is an anaphylactic reaction.

The antibody contents did not vary during the injection of human tubercle bacilli, but a fall of 50 per cent in the titre of antibodies was demonstrated when bovine tubercle bacilli were injected in immune sheep.

Having obtained large amounts of sera with high titre of antibodies we proceeded to the study of the various antibodies and reactions.

#### COMPLEMENT FIXATION

It is supposed that when a sensitizer is brought in contact with its homologous antigen a colloidal complex takes place. This complex later on adsorbs complement. The existence of such complex is indisputable because neither antigen nor sensitizers (antibodies) when used separately in

quantity is used in the test absorbs the complement.

This reaction is governed by many factors, some of which are the concentration of antibodies, the external and internal "phases." The temperature is also one of no small moment. The complement reaction takes place however when we use proper reagents and follow a careful technique. Let us for a moment discuss the antigens.

**Antigens.** Many antigens have been used in the last ten years for the complement fixation test which may be summarized in four groups: (1) Suspension of living or dead tubercle bacilli. (2) Tuberculins heated or unheated which are the result from the growth of the organisms in different fluid media. (3) The extract of such organisms having largely the endotoxine properties obtained either by autolysis or by chemicals and the (4) extracts of tuberculous organs. They all have something in common, that is, they are colloids, and are either the bacilli themselves or derivatives from the bacilli. It is indisputable that the protein fraction of the tubercle bacilli possesses the largest antigenic properties, and that the lipins although necessary, are of secondary importance.

Protein fractions of tubercle bacilli, as already stated, are indispensable for this reaction. The evident participation of lipoids in complement fixation and other serum reactions has led to investigation of the possibility that lipins may act as true antigens. Much and his co-workers have published many monographs on the partial antigens and many other studies on the antibody production by the use of lipins have been reported. For the lack of details in the preparation of such lipin antigens we question their purity and the results obtained. One of us in a former publication dealing chiefly with the chemistry of the antigen pointed out that pure phosphatids like lecithin, sphingomyelin and cephalin prepared under most favorable conditions could not act as antigens in the complement fixation test. No attempt at that time was made however, to sensitize the animals with these phosphatids. On the other hand as we approach the combination of lipo protein like creatine a reaction did take place. It was clearly brought out then that the protein by itself had approximately 85 per cent antigenic properties in comparison to the antigen prepared with the whole pulverized tubercle bacilli and that the lipins probably have a physico chemical and the protein a chemical property in this reaction.

Of the cleavage products of proteins it is certain that none of the amino acids and simple polypeptides can act as antigens. It is doubtful even that such large complexes as the proteases are antigenic. It is evident then that the most ideal antigen for the complement fixation must be



one which represents the smallest dispersed phase of a combination of lipo-protein of the tubercle bacilli having its original molecular structure similar to that of a hydrophilic colloid

We may ask ourselves, does every type of tubercle bacillus possess some antigenic properties? We have found that when filtrates of cultures are used as antigens, it is necessary to have polyvalent antigens, but if an antigen like the glycerin extract be used, a single strain of tubercle bacilli can safely furnish all the antigenic properties so far obtainable

All antigens which have been used in complement fixation give, to greater or less degree, positive reactions. The reactions vary considerably, that is, some antigens give much stronger reactions than others. This probably may be due either to the multiplicity of antibodies or to some other factors influencing the reaction. We find, for instance, that the methyl alcohol extraction of tubercle bacilli gives reactions with some positive sera and misses some sera which should give a positive reaction, while the glycerin extract, which so far in our hands has proved the best antigen, gives many more positive results than the methyl alcohol, or any other antigen used by us. At present we cannot offer any explanation as to the cause of all these variations. The glycerin extract we have modified and briefly the preparation is as follows

#### GLYCERIN ANTIGEN

The tubercle bacilli are cultivated on four per cent glycerin veal infusion broth for four weeks. The masses of the growth are removed from the broth cultures by filtering through several thicknesses of good filter paper. The residue which remains in the filter paper is washed with normal salt solution until the filtrate no longer gives precipitate with tannic acid. This is done because the tubercle bacilli must be freed of the broth which contains glycerin. Slight traces of glycerin make the drying process difficult. The masses of tubercle bacilli are then desiccated in vacuo over sulphuric acid. This is accomplished in from four to six days. Five grams of dry tubercle bacilli are pulverized in porcelain ball mills for two weeks. The porcelain mills must revolve not more than sixty revolutions per minute. Every few days the mills must be dismounted and well shaken to remove the organisms from the corners in the jars. More than five grams of bacilli in the mill prevents their complete pulverization.

The pulverized tubercle bacilli are mixed with 100 cc of pure toluol and extracted for five days at 37½ degrees centigrade. At the end of this time the extract and the residue combined are evaporated to dryness in the incubator with the aid of a fan. The resulting dry masses are returned to the porcelain ball mill and approxi-

mately 20 cc of 25 per cent glycerin is added. The mill containing the glycerin and the tubercle bacilli previously treated with toluol, is run for forty-eight hours which results in complete trituration. At the end of the forty-eight hours all is pipetted and transferred to a flask, the jar washed with 25 per cent glycerin, and the volume of the flask made up to 500 cc with 25 per cent glycerin. It is then boiled slowly for an hour in a flask having a return condenser. After setting it aside for several hours for the large clumps to settle (which are very few) the supernatant turbid suspension is transferred with sterile pipette and put in small tubes, paraffined and stored away for use.

Freshly prepared antigen is not suitable for the reaction. Some changes take place during the first seven days in such antigens and the value of the antigenic properties is much more increased after allowing the antigen to remain in the refrigerator for a week or more.

The antigen is stable and does not lose its antigenic units, nor become anticomplementary for at least one year. The antigen is titrated against known positive and known negative sera, and at least ¼ of the anticomplementary dose must be used for the reaction.

#### FORMATION OF ANTIBODIES

The formation of antibodies responsible for the complement fixation reaction varies with the animals. We have used sheep, guinea pigs, rabbits, goat and cow. The most ideal animals for such experimentation we find to be the sheep, rabbit and cow. The goat gives always a weaker titre and the guinea pig the smallest. We have already somewhere else, described the mode of obtaining higher titre of antibodies in sheep. The production of antituberculous antibodies in other animals is practically the same as for that of the sheep. The experiments carried on in guinea pigs, rabbits and cows are as follows.

*Guinea Pig Experiment* It is a well known fact that antibodies to tuberculosis are demonstrated in guinea pigs in small amount. That is, that the disease becomes so progressive that a complete disappearance takes place by the third week. Such observation was first noted by Besredka and confirmed by us. If a guinea pig is inoculated with a virulent type of human tubercle bacilli and the blood is subsequently studied day after day we may demonstrate complement fixing antibodies on the fifth or sixth day. The height of the titre is reached at about the fourteenth day and after that they gradually disappear.

On the other hand, if we inoculate a guinea pig with a comparatively avirulent type of tubercle bacilli which produces only a localized tuberculosis, we are able to demonstrate antibodies for a long time. The explanation may be of-

ferred that in guinea pigs inoculated with virulent human tubercle bacilli we have stimulation of the cells, bacteriophilic receptors (haptophoric receptors) are found and that the fate of the infecting organisms depends on the amount of bacterial protoplasm which has become converted into toxic bodies. The activities of the antibodies in this case are relatively low, so that the toxic substances formed are not rapidly broken down to nontoxic ones and thus they rapidly accumulate. The rate of activity of the cells for production of antibodies is gradually diminished and the antibodies are outnumbered by the units of toxic substances and the result is an active progressive tuberculosis. In this state the antibodies no longer could be demonstrated by the complement fixation test. In cases where an avirulent strain of tubercle bacilli is used the bacterial protoplasm is rapidly degraded beyond the toxic stage by the activities of the antibodies. The bacterial protoplasm in such a stage is rapidly absorbed. A rapid accumulation of the antibodies is the result which can be demonstrated by the complement fixation test.

**Rabbit Experiments** Rabbit experimentation is somewhat different from that in the guinea pig. Having natural immunity for human tubercle bacilli, they respond more rapidly not only by the formation of antibodies to human tubercle bacilli, but also by the formation of antibodies on the introduction of bovine organisms. At the sixth day after the inoculation of either human or bovine type we may demonstrate existence of complement fixing antibodies with one or the other antigen. They, however, do not give positive fixation with all antigens. If we use methyl alcohol antigen for testing the antibodies we find that only rabbits previously sensitized with human tubercle bacilli have formed antibodies to the methyl alcohol antigen and not the rabbits which received only an initial dose of the bovine type of tubercle bacilli. This can be explained by the fact that the former have developed higher resistance to the secondary invasion and that there must be multiplicity in the complement fixing antibodies.

**Cow Experiments** Antibody formation in the cow is similar to that of the sheep and goat. With the exception that in this animal we have less immunity. Development of such antibodies takes place in apparently a short time, but they persist indefinitely. This probably is due to the existence of a small tuberculous focus. When we compare the subcutaneous tuberculin test with the complement fixation reaction we find that the former at times may become negative, but the latter to be present only during the negative phase of the tuberculin reaction. It seems to us that the complement fixation may be applied to greater advantage for the testing of cattle than the subcutaneous tuberculin test.

**The Chemical Nature of the Antibodies and some of their Physical Properties** Much experimental work has been done on the chemical and physical properties of antibodies. The relation of the lipid to biological phenomenon has received much attention in the last decade. Landsteiner and his pupils have done considerable work on the subject. The antibodies in experimental tuberculosis are not soluble in petroleum ether, carbon disulphide, carbon tetrachloride, acetone, ethyl alcohol, methyl alcohol, ether or benzol. This leads us to believe that the complement fixation antibodies are not lipins. It has been pointed out by many investigators that antibodies are closely related with the globulin fraction of the serum and that the globulins increase with the progress of the disease. We have come to the same conclusion while studying the antibodies in tuberculosis. However, we do not agree with some writers that they are albuminous, but believe that the antibodies are in all probability absorbed and carried down with the globulins.

The complement fixation antibodies demonstrated in the sensitized sheep serum are not destroyed even at 60 degrees centigrade for 30 minutes. At 70 degrees centigrade they are practically completely destroyed. Here we may call attention to the fact that antibodies responsible for the Wassermann reaction are much more sensitive to heat.

Direct sunlight at 1600 feet elevation under different climatic and atmospheric conditions, has various effects on the antibodies. When the air is moist and hot, destruction takes place much more rapidly than when the air is cold and dry. X-ray, when a full erythematous dose is used, has no effect on the antibodies. The same is true when such antibodies are subjected to the radiations of ultra-violet rays.

The antibodies responsible for the complement fixation reaction are colloids and resist dialysis considerably. This property, however, depends on the time allowed for dialysis. They do not diffuse for twenty-four hours and only a slight trace of antibodies may be detected in the dialysate at the end of forty eight hours. The rapid agitation or shaking does not decrease or increase their content.

The electrolytes and the H-ion concentration of the external phase are very important factors. It will be of interest to recall the experiments of H. Sachs and Altman on the inhibitory action of the alkali and to less degree of the acids. Working with the complement fixation reaction, they pointed out the sensitiveness of this reaction to H-ion concentration of the external phase. A positive serum, according to these authors, may be rendered negative by the addition of 1/1000 to 1/3200 normal sodium hydroxide and again a

negative serum may be made to give us a positive reaction by the addition of 1/1000 to 1/2000 normal hydrochloric acid. This observation was confirmed by one of us some time ago and strong emphasis was laid upon the importance of controlling the whole system when the reaction is studied. If we do not check up our system during the preparation for the test we may obtain erroneous results, which are misleading.

*Agglutination* We cannot look upon agglutinins as defensive bodies of the host. We have no evidence to prove that such antibodies are really immune bodies. If we subject bacteria to such antibodies (agglutinins) bacteriolysis does not take place and no injury to the bacteria can be demonstrated. It has been repeatedly demonstrated that micro-organisms can develop well in agglutinating sera. Therefore, agglutinins may be looked upon as antibodies developed as an incident of infection.

Agglutinins like other antibodies are hydrophilic colloids. They are salted out with magnesium and ammonium sulphate and are either globulins or adsorbed and carried down with the globulins. All attempts to separate them from the protein have been unsuccessful. They resist heating up to 60 degrees for 30 minutes and are gradually destroyed as the temperature is raised above 60 degrees centigrade. Alkalies destroy their properties while acids are much less harmful.

Electrolytes play a very important part in this reaction. Bordet has demonstrated it very clearly that if the bacteria are subjected to agglutinins, combination takes place in electrolyte-free solution but no clumping of the bacteria takes place, but as soon as some salts were added to this combination, agglutination took place.

The above observation has been confirmed in our study with the agglutinins present in sensitized sheep sera. This indicates that the bacteria are united by agglutinins, rendering them more susceptible for their precipitation by the electrolytes. The above phenomenon follows the same physical law of the amphoteric colloidal suspensions, which are characterized by being precipitated by the action of electrolytes. The agglutination probably is due to the change of the surface tension brought about by new surface energy and obeys the same laws as other similar physical phenomena. The rate of the reaction, as already stated, depends upon the concentration of the suspension and varies with the different valences of the cations in the electrolytes. If we subject the bacteria to electrical streams they move toward the anode, and are agglutinated between the electrical poles. This indicates the importance of electrical

changes on the bacterial surface in the agglutination reaction.

The physico-chemical interpretation of this reaction has failed to explain the specificity of the reaction. Only the plausible explanation advanced by Michaelis can at present be accepted. His theory is based on the fact, that the optimum concentration of the H-ion, which precipitates the proteins from solution is characteristic and constant with each and every protein. The same may be said with the agglutination of bacteria. For instance if we carry the acid agglutination of typhoid, paratyphoid and colon bacilli we find that typhoid is agglutinated in solutions having hydrogen ion concentration of 4 to  $8 \times 10^{-5}$ . Paratyphoid at 16 to  $32 \times 10^{-5}$  and that the colon bacilli are not agglutinated at all in acid media. When bacteria are sensitized with agglutinins they seem to be more susceptible to acid agglutination than the non-sensitized bacteria.

The above was confirmed by us in the study of agglutinins present in tuberculous sera. The presence of the electrolytes was indispensable and not all electrolytes gave us the same reaction in agglutination of tubercle bacilli. This organism, in comparison with other micro-organisms is much more susceptible to the H-ion concentration. Slight increase of this ion causes rapid, non-specific acid agglutination. Of the electrolytes so far studied we find that the Ca salts bring about more rapid and complete agglutination than any other salts. The reaction is very intricate and we do not believe that it can be applied as a practical test in tuberculosis.

The rate and the titre of agglutinin development in experimental tuberculosis varies with different animals. Sheep respond very quickly and develop a high titre. Rabbits are less favorable for the study of this reaction. Goats respond poorly, and the guinea pigs practically not at all. The serum of normal rat's blood contains agglutinins in fairly large titre.

*Precipitin Reaction* The question whether the various antibody reactions which may result from immunization with a given substance are really due to separate antibodies is very important. The work so far carried on supports the view that there is a distinct difference between them, but that all, probably, are products of the same phenomenon. The precipitins probably are more closely related to the agglutinins than any other antibodies. Here again we have a reaction which depends considerably on electrolytes.

In regards to precipitation formation, it may be compared to the action of rennet on the casein. It has been pointed out by Loicher that small traces of magnesium chloride re-

tard the activities of the rennet, while on the other hand, even a minute trace of  $\text{Ca Sr}$  and  $\text{Ba}$  salts accelerates the coagulation of the casein by the rennet. It has been known for a long time that these salts without the rennet may in time coagulate the milk casein. Other alkali metal salts may coagulate the milk only in high concentration.  $\text{Ca Sr}$  and  $\text{Ba}$  salts at higher concentration also retard the action of the rennet.

If we neutralize a solution of calcium caseate with diluted phosphoric acid, a precipitate of calcium phosphate is formed and a white liquid remains which resembles milk very much and which again can be coagulated by rennet. In other words the reaction is reversible.

As the precipitation of the colloids is accompanied by, or dependent upon the aggregation of their particles the precipitin is closely related to the agglutinin reaction. The density of precipitation and their size is greatly dependent upon the electrolytes present. Here we have a general resemblance between the precipitation occurring when colloids precipitated one another, i. e. when an amphoteric colloid reacts with an acid or a basic colloid.

The precipitins, same as the other antibodies are in the protein fraction of the serum. They are either globulins or adsorbed and carried down with globulin. The origin is not known. Cantacuzene believes that precipitins are in large numbers in the lymphoid tissues and the bone marrow and that the mononuclear macrophages are most active in their production. Precipitins have a haptophoric group by which they unite to the protein molecules and another group by which they produce the changes with the aid of electrolytes resulting in the precipitation.

The antibodies demonstrated in the tuberculous animals are more sensitive to the action of heat than any other antibodies. Only a small trace is lost when they are heated to 56 degrees centigrade for one-half hour, but at 60 centigrade they are practically all destroyed.

As stated elsewhere the electrolytes are indispensable and proper electrolytes must be used in order to obtain a maximum reaction. Ammonium sulphate and magnesium chloride 2N concentration completely retard the precipitation. On the other hand the  $\text{Ca Sr}$  and  $\text{Ba}$  salts give us the most complete reaction.

The antigens used in the study of this reaction were potato broth filtrate, glycerin extract and a new antigen which we shall describe in the near future.

## SUMMARY

In summarizing we shall make an attempt to bring out some of the most important facts which stand out in the foregoing study.

1 The importance of the antigens is indisputable. The protein fraction of the antigen constitutes the strongest antigenic property. The best antigen used by us is the glycerin extract which we have modified of late.

2 Antigen and antibodies are colloids.

3 That the fixation of complement may occur even without the appearance of a precipitate, cannot definitely be proven. We know that albumin particles may aggregate into larger particles without a precipitation, provided the excess of one of the precipitin-forming colloids acts as a protective colloid. On the other hand, it has not yet really been demonstrated that a physical fixation and not an irreversible chemical change occurs in complement fixation.

4 Antibodies are either globulins or adsorbed and carried down with the globulin fraction. X-ray and ultra-violet rays have little effect in causing their destruction. Direct sunlight apparently destroys the antibodies in a short time.

5 We have made an attempt to determine the electrical change of the antigen and the antibodies by the study of cataphoresis. Both being amphoteric colloids we find that they are influenced by the  $\text{H}^+$  or  $\text{OH}^-$  ion concentration and may move either to positive or negative pole. Their electric charge is very small and for this reason either of these ions may reverse their electric charge.

6 Precipitins and agglutinins have been studied in tuberculosis. These two antibodies are closely related.

## District Branches

### ANNUAL MEETINGS FOR 1921

First District Branch—Wednesday, October 19th, in Nyack

Second District Branch—Saturday, October 22d in Garden City

Third District Branch—Thursday, October 13th, in Troy

Fourth District Branch—Tuesday, September 13th in Schenectady

Fifth District Branch—Wednesday, October 5th, in Watertown

Sixth District Branch—Tuesday, October 4th, in Glen Springs Watkins

Seventh District Branch—Thursday, October 6th, in Rochester

Eighth District Branch—Thursday, September 8th in Buffalo

very strongly repudiated, after having examined the few proponents who appeared favoring the bill which he had introduced, any intent on his part to be used as a means of securing such legislation. Moreover, there is no question that if Senator Cotillo strongly favored his bill and felt that it was the best measure there would have been no difficulty in his having had it passed. Dr. Prentice, therefore, is again in error, first in that Senator Cotillo did not disown the bill and, secondly, that the Gibbs bill was reported out without hearing. Governor Smith did veto the last bill, not, however, for the reasons given by Dr. Prentice but because in the Governor's first message to the Legislature he had recommended the abolition of the Narcotic Control Commission and the transfer of its activities to the State Department of Health. This recommendation of his was not accepted by the Legislature nor strongly pushed by him because the State Department of Health did not wish to have the functions of the commission devolve upon them. Moreover, the Gibbs bill was not at all similar to the Lord bill of this year, as may be seen from a brief of its title, which reads, "amending sections 421, 422, 423, 427, 434, 438, Health Law, enlarging powers of inspection of Commissioner of Narcotic Drug Control, increasing salary of Deputies, and making other changes." The bill passed through three committees before being passed by the Senate, as may be seen from the records. It was introduced on February 19th and referred to the Public Health Committee, on February 25th the reference was changed to the Finance Committee, on April 8th it was amended and recommittees, on April 13th, it was reported and again referred to the Judiciary Committee, on April 23d it was reported, advanced to third reading and passed in the Senate. Upon reaching the Assembly it was referred to the Public Health Committee and on April 24th was reported in the Assembly, advanced to third reading and passed. From this record it can be well seen that the facts were not quite as stated by Dr. Prentice who says "the bill (Cotillo) slumbered in the Senate Public Health Committee until, during the closing hours of the legislative session, in its stead the Gibbs Bill was reported out, with no hearings whatever so far as we can learn, and passed. Governor Smith promptly vetoed that bill." Apparently he then creates the inference that there was something sinister about the Gibbs Bill.

The report of the Committee on Narcotic Drugs, of which Dr. Prentice is a member, was not, as he says, "adopted by the American Medical Association." The report was originally a part of that of the Council on Health and Public Instruction (*J. A. M. A.*, Vol. 76, No. 24, Page 1669, Appendix B. Report of Committee on Narcotic Drugs of the Council on Health and Public Instruction) with the preamble reading "The Committee on Narcotic Drugs after meeting in Washington and in New York City and has pursued inquiries by correspondence and in person of the Chairman among its members and with others." The members of this Committee were Haven Emerson, M.D., Chairman, George A. McCoy, M.D., Thomas S. Blair, M.D., and Alfred C. Prentice, M.D. This report was referred in the House of Delegates to the Reference Committee on Legislation and Public Relations who reported (*J. A. M. A.*, Vol. 76, No. 25, Page 1763) "8 Lastly the Committee commends the report of the Sub-committee on Narcotic Drugs and recommends its continuance." This report of the Committee on Legislation and Public Relations was adopted, which is entirely a different thing from adopting the report of the Sub-committee on Narcotic Drugs. What the House of Delegates really did was to advise the continuance of the work of the Committee and not the adoption of its conclusions. If the House had felt that the question was settled by the report of the Committee it would not have recommended the continuance of the Sub-

committee. As a matter of fact the press of other business before the Committee on Legislation and Public Relations and upon the House of Delegates was so great that the report of the Sub-committee was not even discussed, either before the Committee on Legislation and Public Relations or on the floor of the House.

To summarize, Dr. Prentice has, to use the mildest term possible, been inaccurate. There is an old legal saw which says "*falsus in uno, falsus in omnibus*."

I do not intend to enter into any further controversy in relation to this matter nor do I need to state to those in the Society who are fully aware of my conduct in office for the past eight years, that my motives have always been at least as highly disinterested as have those who, in their published letters have called mine into question. For the benefit of those members of the Society who have not seen the circular referred to and in order that they may have the facts upon which this issue is based, it is herewith subjoined.

JAMES F. ROONEY

*To the Secretaries of All County Societies and Delegates to the State Society—*

Two bills relating to Narcotic Drug Control have been passed by the legislature and are now in the hands of the Governor. These bills are Assembly Int. 579, Pr. 1641, introduced by Miss M. L. Smith, the companion bill being introduced in the Senate by Mr. Fearon and Assembly bill Int. 1490, Pr. 1842, introduced in the Assembly by Mr. Lord and in the Senate by Mr. Smith.

The main provisions of the Smith-Fearon bill are the same as those of the Cotillo bill of last year which was withdrawn by the Senator who introduced it at the hearing upon the bill. Senator Cotillo at the hearing was unsparing in his condemnation of the measure and of those who gave it to him to introduce. The Smith-Fearon bill this year was introduced by a group in New York County and was backed at the hearing, held upon it by the Chairman of the Committee on Legislation of the New York County Society, Dr. William P. Healy and his associates, Dr. A. C. Prentice and others, including the President and the First Vice-President of the State Society. Dr. Prentice appeared last year in favor of the Cotillo bill. From reliable information in the possession of the Chairman of your Committee on Legislation of the State Society, this bill was drawn by Mr. Greenfield, an attorney of New York City, in conference with Drs. A. Lambert, A. C. Prentice, E. Eliot Harris and Mr. Towns of the Towns Sanatorium for drug addicts located in New York City, with certain others. The bill was given Miss Smith and Senator Fearon for introduction, as your Chairman is informed by Dr. Prentice.

In brief, it provides

1 "It shall be unlawful for any physician or dentist to prescribe, dispense, administer, sell, give away or deliver any of said drugs to any person except when the drug is obviously and in good faith needed for the treatment or cure of a disease or ailment other than drug addiction, and not for any condition or disease directly due to any drug habit, or resulting solely from the failure of an habitual user of narcotic drugs to procure the same. Provided, however, that it shall not be unlawful for a physician personally to administer any narcotic drug at such time and under such circumstances as he, in good faith and in the legitimate practice of medicine, believe to be necessary for the alleviation of pain and suffering or for the treatment or alleviation of disease or drug addiction."

2 "Every physician, dentist or veterinarian shall keep a record of all such drugs dispensed or distributed, showing the amount, the date and the name and address of the patient to whom said drugs were dispensed or distributed except such as may be dispensed

or distributed to a patient upon whom such physician or dentist shall personally attend elsewhere than at the office or residence of such physician or dentist. Such records shall be written legibly in ink or type and kept in chronological order in book form and shall be kept for a period of two years from the date of dispensing or distributing accessible to inspection by authorized persons. The foregoing provisions of this section do not apply to the administration by a physician dentist or veterinarian of such drugs from a stock solution provided a similar record is kept of the date of making or purchase of the solution the amount and kind of drug used and the date on which the solution is used up. The word 'patient' as used in this section with reference to a veterinarian shall be construed to mean the owner or person in immediate charge of the animal treated.

3 All prescriptions and records kept pursuant to the preceding section shall be subject to inspection by any police officer any agent or inspector of the health department of the state and of the municipality in which kept and any other person specifically authorized by the commissioner or other executive official of any such health department to inspect such prescriptions and records.

4 It shall be the duty of persons officially inspecting such prescriptions or records in case any evidence of violation of law shall come to their attention to report the same to their official superiors.

5 Penalty and prosecution for violation. Violation of any of the provisions of this article shall be punishable by a fine of not more than two thousand dollars or imprisonment for not more than five years or both such fine and imprisonment.

6 Construction of provisions procedure. The provisions of this article shall be construed so as most effectually to carry out the purpose thereof. The forging of a prescription or alteration thereof by any person with intent to deceive shall be deemed a violation thereof. The making of false statement in any record required by this article if made with intent to deceive shall be deemed a violation thereof.

7 Commitment of addicts procedure treatment discharge. The habitual use of any of the drugs specified in section four hundred and twenty of article twenty two of this chapter except as administered prescribed or dispensed in accordance with the provisions of law is hereby declared to be dangerous to the public health and safety. Whenever a complaint is made to any magistrate that any person is so addicted or upon the voluntary application to him of an addict he may if satisfied of the truth thereof and that the person is suffering from such drug addiction commit such person to a state county or city hospital or institution licensed under the state lunacy commission or any correctional or charitable institution maintained by the state of any political subdivision thereof or private hospital sanatorium or institution having an unrevoked certificate of authority from the state department of health for the treatment of drug addiction or inebriety. Nothing contained in this article shall be deemed to require any hospital or other institution to accept any addict for treatment and no addict shall be committed to any hospital or other institution which does not accept such patient.

8 Voluntary hospital commitment.—Any public hospital sanatorium or institution may accept as a charity patient any person voluntarily applying for treatment for drug addiction and any such institution may, if a voluntary applicant signs a statement that he is suffering from drug addiction and desires treatment in the same manner and subject to the same rules and restriction as if committed by a magistrate receive such person without formal commitment with like effect as if formally committed subject to discharge when sufficiently treated or for any other reason deemed adequate. Any local health board or officer may likewise on such application and signed statement place the ap

pliant in any hospital receiving such patients at public expense.

9 For the enforcement of the provisions of this article statements representations or acts herein referred to shall not be privileged as confidential communications.

10 Possession of drugs or instrument for hypodermic administration evidence of habitual use. In any proceeding for the enforcement of the provisions of this article, the possession by a person not suffering from a disease or ailment, other than drug addiction, for the treatment or cure of which narcotic drugs are obviously and in good faith needed, of any of the drugs specified in section four hundred and twenty of article twenty two of this chapter, or of any instrument adapted and intended for the hypodermic administration of the same shall be prima facie evidence that such person is an habitual user of such drugs except when such possession is incident to the legitimate business, profession occupation or official position of such person.

The essential provisions of the Lord Smith bill are as follows:

1 Physicians. A physician may in the course of the legitimate practice in good faith of his profession and for the purpose of relieving or preventing pain or suffering on the part of a patient or to effect a cure administer prescribe or dispense cocaine or opium or its derivatives as follows:

He may upon an unofficial prescription blank issue a prescription which does not contain more than five grains of cocaine or more than thirty grains of opium or more than six grains of codeine or more than four grains of morphine or more than two grains of heroin. He may also upon an unofficial prescription blank issue a prescription for such quantity of any such drugs in excess of such respective quantities as may be reasonably required in the treatment of a surgical case or a disease other than drug addiction provided such fact be stated upon prescription. Each other prescription for any of such drugs shall be written upon a serially numbered official prescription blank in triplicate the form of which shall be prescribed by the state department of health and which shall be procured from such department signed by him and containing in legible English or Latin the name and amount of the drug prescribed the name age and address of the person for whom and the date when the prescription is issued and a statement by the patient or when and by whom he was last treated and the name and amount of the narcotic prescribed or dispensed. He shall issue the original and one other of such triplicate prescriptions for delivery to an apothecary and shall retain the other copy on file for a period of two years.

He may administer or dispense to a patient whom he is treating not to exceed two grains of cocaine or fifteen grains of opium or three grains of codeine or two grains of morphine or one-fourth of a grain of heroin.

He may while absent from his office in personal attendance upon a patient whom he is treating, dispense to be taken in his absence not to exceed fifteen grains of opium or three grains of codeine or two grains of morphine or one-fourth of a grain of heroin.

If he otherwise administer or dispense any of such drugs he shall record in writing upon a serially numbered official physician's dispensing blank in duplicate the form of which shall be prescribed by the state department of health and which shall be procured from such department in legible English or Latin the name and quantity of the drug and the form in which administered or dispensed the name age and address of the person for whom and the date when administered or dispensed a statement by the patient of when and by whom he was last treated and the name and amount of narcotic prescribed or dispensed and shall sign the same. He shall keep the original of such dispensing blanks on file for at least two years and shall if his

practice is conducted in a city of the first class, within twenty-four hours, mail the copy to the board of health or department of health of such city or if his practice is conducted in a place other than a city of the first class, he shall within twenty-four hours mail the other copy to the state department of health"

2 "It is hereby declared that drug addiction is a physical condition requiring medical treatment. It shall be lawful, subject to the requirements of this article, for any duly licensed physician after a physical examination, personally conducted, to administer to, or prescribe for, any person whom such examination discloses is addicted to the use of any habit-forming drugs, any of the drugs herein referred to, in reasonable quantities dependent upon the condition of such person and his progress toward recovery, provided such physician acts in good faith, solely for the purpose of relieving physical stress or effecting a cure of such habituate. Such physician shall first satisfy himself that such applicant is thus seeking a means of relieving physical pain and not procuring or attempting to procure drugs for the purpose of illegal sale or distribution"

3 "Administration of drugs by hospitals and institutions. A hospital, sanatorium or other institution maintained by the United States or the State or any of its political subdivisions, or a public hospital or other institution in which persons are treated for disability or disease other than drug addiction, or a public hospital, sanatorium or institution in which persons are treated for inebriety or drug addiction or a private hospital or institution registered with the former department of narcotic drug control or with the state department of health in which persons are treated for disability or disease other than drug addiction or a private hospital, sanatorium, institution or place in which persons are treated for inebriety or drug addiction, may, under the supervision of a physician, administer cocaine or opium, or its derivatives to inmates who are under treatment as patients"

4 "Private hospitals and institutions to be authorized. Cocaine or opium or its derivatives shall not be administered in nor shall any person be treated for inebriety or drug addiction in a private hospital, sanatorium, institution or place maintained or conducted in whole or in part for the treatment of inebriety or drug addiction unless such institution be registered with the former department of narcotic drug control or with the state department of health"

5 "Hospitals, sanatoriums and other institutions. Each hospital, sanatorium, or other institution authorized by the provisions of this article to administer cocaine or opium or its derivatives shall keep a record which shall contain the date of each purchase or receipt, the name and address of each person from whom and the name and quantity of each such drug purchased or received. It shall also keep a record of the gross amount of each such administered drug"

6 "Each prescription written upon an official blank and each other record, except prescriptions required to be kept by an apothecary, shall be contained in books, the leaves of which shall be permanently bound together. Each record required by the provisions of the article to be kept shall be kept in a place easily accessible for a period of at least two years and shall be at all times subject to the inspection of the state department of health or the board of health or department of health of cities of the first class"

7 "Records confidential. All papers, records, information, statements, and data filed with the state department of health, or with a local board of health or kept by any person pursuant to the provisions of this article shall be regarded as confidential, and shall not be open to inspection by the public or any person other than the official custodian of such records, such persons as may be authorized by law to inspect such records, and the persons duly authorized to prosecute or enforce the federal statutes or the laws of the state of New York, but then only for the purpose

of such prosecution or enforcement. No employee or other person shall disclose or aid in the disclosure of such, or any part of such, papers, records, information, statements, or data to any person not authorized by law to inspect the same"

8 Same as paragraph 7 and 8 in Smith-Fearon bill above given

It can be seen by comparison that the Smith-Fearon bill places great restrictions upon the ordinary practitioner of medicine, especially in smaller towns and agricultural districts of the state which are so burdensome that patients may suffer grievously because of the fear of the physicians to prescribe in good faith, narcotic drugs necessary for the saving of life or alleviation of suffering, whereas the Lord-Smith bill places no restriction upon the practitioner of medicine that he must not already suffer under the Federal Law

The Smith-Fearon bill does not require the keeping of any records by state or private institutions as may be seen in the last part of Paragraph 2 in the outline of the bill given above

The absolute prohibition of the treatment of drug addicts outside of an institution as required by the Smith-Fearon bill may work appreciable danger to the lives of drug addicts in those parts of the state where there are neither private nor state hospitals for their reception

It is notoriously a fact that there are not a sufficient number of beds in state, county or municipal hospitals to take care of the addicts who, under this law could not be treated anywhere else. It is probable that the number of drug addicts lies somewhere between the figures of twenty and fifty thousand. The exact number is unknown. It may be readily understood, therefore, that if, as will be the fact when this law goes into effect, addicts could not be treated except in institutions, provision must be made for twenty to fifty thousand additional hospital beds to care for them *or they must be committed to private institutions, and the municipality or county from which they are committed must be responsible financially for their care*

Yet it is further known to be the fact that as Chairman of your Committee in answer to the question of Senator Whitney, the Chairman of the Special Legislative Committee for the Investigation of Drug Addiction, "What is the percentage of cures in drug addicts?" Your Chairman responded by saying "Ninety per cent of drug addicts are like a good Indian, it having been said that the only good Indian is a dead Indian and it might be paraphrased that the only cured addict is a dead addict." Moreover, this statement as to the percentages of cures was confirmed in a private conversation with your Chairman by the Superintendent of one of the largest municipal hospitals in New York City, to which a very large number of addicts have been committed who admitted that only about ten per cent of the addicts were curable or cured

In about ninety per cent of the cases of drug addiction, the habit was based upon a mental subnormality which was congenital and that these cases could not be cured more than temporarily, they always reacquired the habit when the stress of life became too great for them to bear

Under these circumstances, therefore, a measure such as the Smith-Fearon bill could merely, as has been stated by Judge Collins of the Court of Special Sessions in New York City, but increase illicit peddling and would throw the addicts, respectable and criminal, into the underworld for their supply of drugs

You will find enclosed herewith a postcard which you are asked to immediately complete and return in order that the sentiment of the various county societies may be ascertained and placed before the Governor for his consideration

Respectfully yours,

JAMES F. ROONEY, Chairman,  
Committee on Legislation, Medical Society,  
State of New York

## AMERICAN ROENTGEN RAY SOCIETY

At the last annual meeting of the American Roentgen Ray Society it was voted to appoint a committee on safety.

In order that this committee may give proper consideration to the various matters involved they request the co operation of the medical profession in the collection of data in regard to injuries due to the operation of X ray apparatus.

Readers of this Journal are requested to give the committee any information that they may have. No names of institutions, physicians or patients need be given and information will be regarded as confidential in any case. The attached sheet suggests some of the information that would be of service. As far as possible the exact conditions under which the injury occurred should be given.

It is the aim of this committee to determine the prime causes of accidents and the best means of preventing them without interfering with the utilization of the rays or causing needless expense. Also a few simple rules for the guidance of manufacturers and roentgenologists may be worked out.

Communications may be addressed to any member of the committee or to Miss Doris Kaefer Secretary, Rockefeller Hall, Ithaca, N. Y.

Dr W D Coolidge Schenectady N Y  
Dr P M Hickey Detroit Mich  
Dr H K Princeton Philadelphia Pa  
Dr G W Holmes Boston  
Dr J S Shearer Ithaca N Y

## ELECTRIC SHOCK

- 1 No of injuries observed or reported
- 2 The extent and nature of each
- 3 Incurred during
  - (a) Treatment
  - (b) Fluoroscopes
  - (c) Radiography
- 4 Type of apparatus in use
  - (a) Large Transformer
  - (b) Small type Transformer
  - (c) Induction Coil
- 5 Control Resistance Autotransformer
- 6 Type of support on which the person injured was placed

- (a) Standing, on floor of
 

wood
concrete
tile
- (b) On a wooden table
- (c) On a metal table
- 7 If the latter was it grounded?
- 8 Any information as to actual or supposed special conditions at the time of the injury
- 9 Was the tube or apparatus damaged?
- 10 Was the accident due to any failure of the apparatus?
- 11 Was room damp or wet?

## INJURY DUE TO X RAYS

- 1 Extent and seriousness—
  - (a) Simple dermatitis
  - (b) Second or third degree dermatitis
  - (c) Telangiectasis
  - (d) Temporary loss of hair
  - (e) Permanent loss of hair
- 2 Was the patient being
  - (a) Fluoroscoped
  - (b) Radiographed
  - (c) Treated
- 3 What type of apparatus was used?
- 4 What current—spark gap—distance—filter—time was used?
- 5 Was any method of measuring skin dose employed?

## Deaths

- BEDEE EDWIN L Buffalo College of Physicians and Surgeons of New York 1900 Member State Society, Buffalo Academy of Medicine Alumni Presbyterian Hospital Died July 15 1921
- HENRIAT HENRY New York City Bellevue Medical College, 1883 Fellow American Medical Association Member State Society Alumni Bellevue Hospital Died July 12 1921
- HUNT WARD C Little Falls, Albany Medical College 1893 Member State Society, Physician Little Falls Hospital Died June 25 1921
- MOON JOHN H Cooperstown, Albany Medical College 1872 Fellow American Medical Association Member State Society Physician Thanksgiving Hospital Died June 28 1921
- MUSGRAVE CHRISTOPHER JAMES New York City, New York University 1887 Fellow American Medical Association Member State Society Died July 30 1921
- POTTER EZRA BAKER Rochester, University of Pennsylvania 1872 Member State Society American Medical Psychological Association Rochester Academy of Medicine First Assistant Physician State Hospital Rochester Died June 24 1921
- SELDEN ROBERT Catskill Western Reserve University, 1869 Fellow American Medical Association, Member State Society Died July 23 1921
- SWINBURNE GEORGE KNOWLES New York City College of Physicians and Surgeons of New York, 1885, Fellow American Medical Association American Cento Urinary Surgeons American Urological Member State Society Academy of Medicine G U Surgeon St Marks and Good Samaritan Dispensaries Died July 23 1921
- WARN BEN J Albany Medical College 1884 Member State Society Died June 25 1921
- WEIL CHARLES Buffalo Buffalo Medical College 1882 Member State Society Died June 16 1921

## County Societies

## MEDICAL SOCIETY COUNTY OF ERIE

## REGULAR MEETING IN BUFFALO

JUNE 20 1921

The President Dr Bennett called the meeting to order in Buffalo Medical College at 8 45 P M

The following members were elected Drs Charles C Herger, James M Meehan Ivan J Koenig R G Fowler and Dr F H Stambro was reinstated to membership.

The President called attention to the Centennial Anniversary of the Society which occurs this year and stated his intention to secure Dr Cabot of Boston for the Medical Clinic Dr Deaver of Philadelphia for the Surgical Clinic and Dr Irving W Potter of Buffalo to demonstrate his method of version. All these clinics to take place at the City Hospital to be followed by a dinner in the evening at which the President and officers of the State Society as well as other celebrities were to be invited to participate.

The offer of the Morrill Studio to make photographs about 8x10 inches in size of every member of the Society and mount them in books containing 100 photographs each to be presented to the Society free of all expense was accepted.

The President also called attention to the notice sent out by Mr Whiteside counsel of the State Society in regard to indemnity insurance for members at a nominal cost in the Aetna Insurance Company on motion duly seconded and carried this plan as recommended was endorsed.

The President then introduced Professor A Bruce Macallum of Toronto University who gave a very



elaborate general review on the subject of vitamins, with special reference to their clinical and economical application with lantern demonstration. At the close of Professor Macallum's lecture the subject was briefly discussed by some of the members present, after which a rising vote of thanks was given Professor Macallum. The Society then adjourned to the library where the usual good fellowship luncheon was participated in.

### Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

**PRACTICAL TREATISE ON DISEASES OF THE SKIN** By OLIVER S. ORMSBY, M.D. Second Edition, thoroughly revised. Octavo of 1,166 pages with 445 illustrations. Philadelphia and New York, Lea and Febiger, 1921. \$10.00.

**ROENTGEN INTERPRETATION** By GEORGE W. HOLMES, M.D. and HOWARD E. RUGGLES, M.D. Second Edition, thoroughly revised. Octavo of 228 pages, with 184 illustrations. Philadelphia and New York, Lea and Febiger, 1921. \$3.25.

**NUTRITION AND CLINICAL DIETETICS** By HERBERT S. CARTER, M.A., M.D., PAUL E. HOWE, M.A., Ph.D., HOWARD H. MASON, A.B., M.D. Second Edition, thoroughly revised. Octavo of 703 pages. Philadelphia and New York, Lea and Febiger, 1921. \$7.50.

**FUNDAMENTALS OF BACTERIOLOGY** By CHARLES B. MORREY, B.A., M.D. Second Edition, thoroughly revised. 12mo of 320 pages, illustrated with 171 engravings and 6 plates. Philadelphia and New York, Lea and Febiger, 1921. \$3.25.

**PRACTICE OF MEDICINE** By HUGHES DAYTON, M.D. Fourth Revised Edition. 12mo of 328 pages. Philadelphia and New York, Lea and Febiger, 1921. \$2.25.

**INFECTIONS OF THE HAND** A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. By ALLEN B. KANAVAL, M.D. Fourth Edition, thoroughly revised. Octavo of 500 pages with 185 illustrations. \$5.50.

**GENERAL PATHOLOGY—An Introduction to the Study of Medicine** Being a Discussion of the Development and Nature of Processes of Disease. By HORST OERTEL, Strathcona Professor of Pathology and Director of the Pathological Museum and Laboratories of McGill University and of the Royal-Victoria Hospital, Montreal, Canada. Cloth, pp. 357, with illustrations. Price, \$5.00 net. New York: Paul B. Hoeber.

**ORGANIC DEPENDENCE AND DISEASE: THEIR ORIGIN AND SIGNIFICANCE** By JOHN M. CLARKE, D.Sc., Colgate, Chicago, Princeton, LL.D., Amherst, Johns Hopkins, member of the National Academy of Sciences, New York State Paleontologist. Yale University Press, New Haven, Conn., Humphrey Milford, Oxford University Press, London. 1921.

**OPERATIVE SURGERY**, by J. SHELTON HORSLEY, M.D., F.A.C.S., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. with 613 original illustrations. Illustrated by Miss HELEN LORRAINE. C. V. Mosby Company, St. Louis, Mo. 1921.

**THE ALLEN (STARVATION) TREATMENT OF DIABETES**, with a series of graduated diets. LEWIS WEBB HILL, M.D., Junior Assistant Physician, Children's Hospital, Boston, Alumni Assistant in Pediatrics, Harvard Medical School, and RENA S. ECKMAN, Dietitian, Massachusetts General Hospital, Boston, 1911-1916, with an introduction by RICHARD C. CABOT, M.D. Fourth Edition. W. M. Leonard, Boston. 1921.

### Book Reviews

**KEEN'S SURGERY** Volume VIII. By Surgical Experts. Edited by W. W. KEEN, M.D., LL.D., Hon. FRCS, Eng. and Edin., Emeritus Prof. Principles Surgery and Clinical Surgery, Jefferson Medical College, Phila. Octavo, 960 pages, 657 illustrations, 12 in colors. Phila. and London: W. B. Saunders Co., 1921. Volumes VII and VIII and Desk Index Volume, Cloth, \$25.00 net per set. Sold by subscription.

The subject matter included in this volume is supplementary to that which has appeared in previous volumes. The advances in civil and war surgery are in many instances contributed by those who wrote previously upon the same subjects. The chapter on appendicitis, formerly written by John B. Murphy, is now presented by John B. Deaver and Damon B. Pfeiffer.

Significant advances have been made in many branches of surgery since the progress recorded in the first six volumes of this system. Volume VIII contains almost 1,000 pages of reading matter divided into 65 chapters, representing a long array of subjects. Chapters of especial interest are the following: Surgery of the Thyroid; Recent Advances in Our Knowledge of Pathology of Goitre; The Chemical Nature of the Thyroid Secretion; Surgery of the Hypophysis; Surgery of the Head; War Wounds of the Face and Jaws; Surgery of the Thorax.

These articles represent in the main rather specialized monographs from particular angles written by men of recognized authority in their own particular fields. The subject matter contained in this volume, gives the impression of being incomplete and isolated—a fault inherent in all systems contributed by large numbers of authors. A rather more appreciable survey of subjects could be grasped more easily and more quickly by the student if "The Surgery of the Prostate," for example, followed in loose leaf form immediately after the contribution to this subject which it supplements.

A complete index, bound in a separate volume, affords ready reference to the entire system of eight volumes. R. H. POWER.

**TREATISE ON FRACTURES IN GENERAL INDUSTRIAL, AND MILITARY PRACTICE** By JOHN B. ROBERTS, A.M., M.D., FRCS, and JAMES A. KELLY, A.M., M.D. Second Edition, Revised and Entirely Reset. With 1,081 illustrations: radiograms, drawings and photographs. J. B. Lippincott Company, Phila., Pa., 1921.

This work has enjoyed a very well deserved popularity since its debut in 1916. We passed judgment upon it and found it lacking in no essential in these columns in 1917. Its character has been preserved and no one who treats fractures should be without this volume.

Since the World War added experience in fractures has upset certain dogmas and other creeds, newly established, have superseded those which are now no longer tenable. Responsibility in the treatment of fractures with the advent of the Workmen's Compensation Act has increased. This responsibility must be fixed. There is now no excuse in enlightened communities for the neglect of the use of the X-ray before reduction and after the attempt has been made as well as all along the course of convalescence until as satisfactory a result as is compatible with the lesion and circumstances is obtained. This check must be absolute and is required by law.

Early mobilization and massage in many instances has been substituted for the time honored immobilization. Suspension methods of treating fractures of the femur have been revived and are now in favor as the treatment of choice. Williams has shown us that active mobilization of gun shot fractures involving the knee joint gives the best results. This book imparts the best knowledge which modern conceptions have to offer. Let us add our hearty congratulations again to these clinicians who have added such a good book to literature. R. H. FOWLER.

**PRACTICAL CHEMICAL ANALYSIS OF BLOOD** A book designed as a brief survey of this subject for physicians and laboratory workers By VICTOR CARYL MYERS M.A. Ph.D. Illustrated C. B. Mosby Co., St. Louis 1921 \$3.00

Doctor Victor C. Myers contribution to the laboratory library on the Practical Chemical Analysis of the Blood is undoubtedly the most valuable work of its kind. In view of the numerous methods described and recommended by numerous investigators the pathologic chemist has been confused regarding the relative practical value of the procedure to adopt. In his book Myers has described to the utmost detail the one method that has served to give the best results in his hands, with a brevity and clarity that is highly commendable. Brief theoretical considerations are discussed and the practical results are described and illustrated with tables.

In the appendix is outlined the result to be expected in various clinical conditions and the tests indicated in specific cases. Quantitative microchemical methods for urine are described and an excellent working list of standard solutions and reagents is provided.

This small book of 121 pages is one without which no laboratory is complete and can be recommended as well to the physician that uses microchemical blood and urinalysis in his office. As a practical guide it has no superior in its sphere.

**DIAGNOSTIC AND THERAPEUTIC TECHNIC** A Manual of Practical Procedures Employed in Diagnosis and Treatment By ALBERT S. MORROW, M.D., Attending Surgeon, City and St. Bartholomew's Hospitals New York City. Third edition entirely reset. Octavo 894 pages 892 illustrations mostly original. W. B. Saunders Co. Phila and London, 1921. Cloth \$8.00 net.

The present edition of this useful work is most comprehensive as can be seen by reference to the table of contents. It includes such procedures as local and general anesthesia blood transfusion all forms of hypodermic and intravenous medication punctures and aspirations and the methods for examination and local treatment of all the accessible organs and cavities of the body. It is eminently practical throughout, is clearly written and profusely illustrated.

E. B. SMITH

**MOTHER AND CHILD** By EDWARD P. DAVIS A.M. M.D. Fourth Edition Revised J. B. Lippincott Co. Phila. Pa. 1921 \$2.75 net.

This work comes from the pen of one of America's great teachers and like most great men he has shown that he can do well what is sometimes considered a small thing. This fourth edition continues its excellent form and its elaborate table of contents makes up for the lack of index. It carries along the reader who is most frequently a lay person in an orderly way. It does not imitate a text book on obstetrics and thus gets the pregnant mother into the proper attitude of turning to her medical attendant for advice. He tells her that the place for a primipara or a multipara with pathology is in a hospital but if she refuses she must reproduce a hospital in her home. There is a great deal of space given with a lot of common sense advice to the baby thereby saving time to the family physician or the pediatricist but it is so done that there is no unattractive shifting of responsibility. No two men can write in the same manner or with the same idea especially for the lady but we feel that obstetrician and pediatricist alike will have little to criticize in this excellent book for expectant mothers.

E. B.

**THE PRINCIPLES OF IMMUNOLOGY** By HOWARD T. KARSNER M.D. and LYRIQUE E. ECKER Ph.D. Illustrated J. B. Lippincott Co., Phila. Pa., 1921. Price \$5.00.

In *The Principles of Immunology*, Drs. Karsner and Ecker have contributed a volume well worth adding to the library of the physician interested in immunology in all its phases. The subject is presented in a clear and concise manner. Confusing and contradictory opinions and theories find no place in the text.

The attempt to present facts supported by actual experiment and the correlation of these facts to express fundamental principles has been successfully dealt with. The combination of theoretical explanation with experimental illustration and practical application enhances the value of this work and makes its reading of great interest and value.

As a whole the profession is to be congratulated upon the acquisition of the splendid contribution to American medical literature and the authors are to be commended upon the excellence with which they handle so complicated a specialty as Immunology.

**TUBERCULOSIS OF CHILDREN** Its Diagnosis and Treatment By PROFESSOR DR. HANS MUCH Translated by Dr. Max Rothschild. The Macmillan Co., New York City 1921.

It goes without special comment that any publication by Professor Much commands respectful attention. The present volume is up to expectations and will disappoint no one seeking light in a much discussed and perhaps therefore obscure field. The author has many definite ideas on the subjects of infection and immunity and it must be admitted, states them in a generally lucid manner. The portion of the book devoted to diagnosis is especially valuable—every symptom sign and method of investigation is presented and weighed and appraised nothing vital is omitted. In the section given over to treatment all the well recognized procedures are considered with special emphasis laid on the author's method of employing what he terms 'Partial Antigens' or Partigens. Dr. Much has of course written favorably of the efficiency of Partial Antigens in the treatment of Tuberculosis for a number of years, and yet a careful searching through the literature of the subject fails to show a confirmation of his results in the hands of others. Few if any, American English or French workers have used them at all. Of the German workers Walthard Kammerer and Jacob and Blechschmidt failed to be impressed by their use. We hesitate, therefore to pass judgment on this particular portion of the text. We hope for more reports by other investigators. Quite apart from the section devoted to the use of 'Partigens' the book is one of the most authoritative on the subject of Tuberculosis in children and as such is invaluable. FOSTER MURRAY

**THE NEW POCKET MEDICAL FORMULARY WITH AN APPENDIX** By WILLIAM EDWARD FITCH M.D. Third Edition Revised F. A. Davis Co., Philadelphia, Pa., 1921 \$2.50 net.

This little book contains a lot of valuable information and is well adapted to the needs of the general practitioner. The formulae cover practically everything the general practitioner is called upon to treat and they conform with the latest revision of the U. S. Pharmacopoeia. Some of the prescriptions are old and perhaps not used to any great extent at the present time while to the contrary there are many that are excellent and could not be improved upon. There is a double system of cross indexing which adds greatly to its completeness. The tables on differential diagnosis, dietetics, dosage, poisons and antidotes, incompatibilities and others are well arranged and give at a glance the desired information in an emergency. It is a book well worth having.

FREDERICK SCHROEDER

**PRACTICAL TUBERCULOSIS A BOOK FOR THE GENERAL PRACTITIONER AND THOSE INTERESTED IN TUBERCULOSIS** By HERBERT F. GAMMONS, MD Introduction by J. B. McKnight, MD Published by C. V. Mosby Company, St. Louis, Mo., 1921 Price, \$2.00

In this work the author has successfully accomplished the presentation to the general practitioner of many valuable points in the care and treatment of patients with pulmonary tuberculosis. A book, however, of this small size—(12mo), of 154 pages, divided into twenty-eight chapters and that many subjects must necessarily omit many things, and abbreviate others to an extent that limits the field of its usefulness. While taking no undue credit for original observation the work gives one the impression of a writer who has had much personal experience in dealing with this disease, and from the fulness of that experience does he speak. To many who need or desire the essentials of the subject, the book will be of much assistance. Another edition, with its opportunity for correcting minor faults in diction and rearranging the order of his minor subjects will be even more valuable.

T. A. MCGOLDRICK

**THE ORIGIN AND DEVELOPMENT OF THE NERVOUS SYSTEM—FROM A PHYSIOLOGICAL VIEWPOINT** By CHARLES MANNING CHILD, Professor of Zoology, University of Chicago. University of Chicago Press, Chicago, Ill., 1921 Price, \$1.75 net Postpaid, \$1.90

Those who are interested in the mode of origin and subsequent development of the nerve-system or in the broader problem of biologic pattern will find this little volume replete with suggestion for further research. Those who are unfamiliar with the present status of these problems, or unacquainted with the body of evidence in the light of which their discussion must be carried forward may fail to grasp the full significance of many of the author's contentions, or may even lose the leading threads of his discourse. For, in this book, his method is distinctly that of the philosophic, as contrasted with the laboratory zoologist.

Throughout the book attention is focussed upon the genesis and pattern development of the nerve-system, but the more inclusive problem of organismic pattern in general is naturally, one may even say unavoidably, involved in the discussion. The author clearly points out that organismic pattern directly concerns relations between regions or masses and not between molecules or atoms, and is therefore of a molar, not of a molecular or atomic order of magnitude. He, very properly, contends that its genesis must be sought among the interactions of organism and environment, there being no sufficient reason for imagining it as either preformed or predetermined in protoplasm. Its origin cannot, he argues, be rationally attributed to transportative (material) interchange, because such interchange can only occur between parts already materially different from one another, and therefore in an organism in which some degree of pattern pre-exists. That, on the other hand, excitatory states initiated at definite external-surface areas of an unpatterned organism, and thence transmitted to more or less remote regions of it, may give origin to, or even lay down the lines of subsequent patterning. For, although excitatory-transmission involves local difference, such difference is but transitory, being initiated by environmental energy-change and rapidly subsiding, and being fundamentally dependent upon no pre-existing pattern, save possible slight residual effects of previous excitation and transmission. This contention may, at first glance, seem quite justified. But one should not forget that a living organism

may be modified, not only by energy changes in its environment but by material changes as well. Food particles received through its external surface give rise to material differences between local, superficial regions and the remainder of the organism, and, because of these material differences, transportative (material) interchange—and therefore patterning—is initiated, though no organismic pattern may have pre-existed. Hence the reviewer cannot accept the author's contention—which recurs again and again throughout the book—that the first step in organismic pattern must necessarily be initiated by environmental energy change, because there seems to be no warrant for assuming that environmental material change cannot initiate equivalent patterning effect. That the Nerve-system may be, primarily, an outcome of energetic interaction of environment and organism is quite probable, though in no sense new, but that another system—the digestive for example—may be primarily an outcome of materialistic interaction of environment and organism is no less probable. Nor does present evidence warrant the assertion that either of these is primarily predominant, much less persistently so. Hence, one of the author's chief contentions to the effect that the origin and progressive modification, not merely of the nerve-system but of organismic pattern in general is to be attributed primarily, predominantly and persistently to the effects of excitation-transmission processes initiated by energy changes in the organism's environment, and only secondarily by transportative processes initiated by material environmental changes, is not stoutly supported by the evidence at hand.

But whether or not all the author's conclusions are considered acceptable, his philosophic discussion of the physiologic significance of organismic pattern helps to clear the field of some still lingering speculative hypotheses and, by distinctly focussing the matter, to render it more readily approachable by further observation and experimentation.

J. C. C.

**THE MEDICAL CLINICS OF NORTH AMERICA** Published Bi-Monthly by W. B. Saunders Company, Philadelphia and London. Price per year, \$12.00. Volume 4, Number 5, March 1921 (New York Number).

This issue is an unusually valuable number. The article by Blumgarten on "The Role of the Endocrines in Common Medical Diseases" is a good one. It is a splendid summary on the present day knowledge of this most difficult subject of Endocrinology. The article is well expressed and amply corroborated by a wealth of clinical material. We were impressed particularly with the fact that it is free from the products of vivid imaginations which are usually used by writers on this subject to explain every unknown phenomena in medicine. After reading this article one cannot help but come to the conclusion that while 90 per cent of Endocrinology is "rot," still there is something to it.

Draper's article on "Reversible Secondary Sex Phenomena" is especially good, but requires deep study and absolute concentration.

Dr. Ottenberg's article on "Blood Transfusions" is particularly practical and expresses the direct results of extensive clinical experience. We are glad to see that he has such a high opinion of "citrate transfusions," in which we concur.

Anyone wishing to know the latest word on Leukemia, should read and digest Rosenthal's excellent contribution. In fact, all the other articles are worth reading.

WILLIAM LINTZ

**EPIDEMIC RESPIRATORY DISEASE** The Pneumonias and Other Infections of the Respiratory Tract Accompanying Influenza and Measles. By EUGENE L. OPIE, M.D., FRANCIS G. BLAKE, M.D., JAMES C. SMALL, M.D., and THOMAS M. RIVERS, M.D. Illustrated C. V. Mosby Co. St. Louis 1921. Price, \$6.50.

This book represents the work done by the authors while serving in the army and stationed at Camp Funston and Camp Pike. It covers a study of respiratory infections associated with measles and influenza. Uncomplicated influenza was also studied from a bacteriological standpoint. After reviewing the bacteriological findings in their own series and those of other investigators they feel that the weight of evidence is in favor of the B. Influenzae as the cause of the recent epidemic. They consider this disease identical with the disease which swept the world in 1889 and 90 and they believe that they encountered a mild epidemic of the same disease at Camp Funston in the spring of 1918.

From a pathological standpoint of course all cases that came to autopsy were complicated by other infections. A detailed description of the pathology of these findings is given. Purulent bronchitis was very commonly found, usually associated with pneumonia. Forty per cent of the cases which came to autopsy at Camp Pike showed lobar pneumonia. Bronchopneumonia was present in the other sixty per cent. Occasionally both were found. The lobar pneumonia was looked upon not as a hemogenous infection but was said to occur as a result of a spreading of the infection by continuity from the bronchi to the surrounding tissue. It was probably always due to the pneumococcus. Bronchopneumonia then found to develop by extension from the finer bronchioles the patches being (1) clustered about the terminal bronchioles (2) foci surrounded by intra alveolar hemorrhage (3) throughout whole lobules or groups of lobules and (4) surrounding medium sized bronchi like sheaths. They found various stages in the development of bronchiectases which occurred through longitudinal splitting of the bronchial tissue with dilatation and later scarring. Other conditions described include suppurative pneumonia with necrosis and abscess formation, interstitial suppurative pneumonia, suppurative pneumonia with multiple clustered abscesses caused by staphylococci, empyema, pericarditis and peritonitis and unresolved pneumonia.

The bronchopneumonia following measles was found to simulate in all important respects the pathological changes described in influenza.

An exhaustive bacteriological study was carried on along with pathological observations. While the organisms of normal mouth flora were frequently found responsible for some of the damage, such pathogenic organisms as the fixed type pneumococci, hemolytic streptococci etc. occurred often enough to provide a fruitful field for the study of transmission of these infections. The role of the carrier was emphasized. A series of instructive observations showed clearly the transmission of some of these types in wards which were unprovided with cubicles and care was lacking in the prevention of such transmission. The figures show that when the stress of work allowed these provisions to be put into effect the cross infections immediately ceased.

An appendix describes some inoculation experiments with monkeys in which influenza bacilli alone and with other organisms were introduced into the nose and pharynx and into the trachea with the production of illnesses varying from a mild upper respiratory infection to fatal pneumonia.

The book offers a wealth of detailed observation concerning the bacteriology and pathology of the conditions studied and should prove of great value to students of this subject. The conclusions make no claim to finality in all respects but express frankly the opinion of the authors. T. H.

**TRAUMATIC SURGERY** By JOHN J. MOOREHEAD, M.D., F.A.C.S. Late Lt. Col. Med. Corps American Expeditionary Forces, Prof. Surgery and Director of Traumatic Surgery, N. Y. Post Graduate Hospital. Second Edition Entirely Revised. Octavo 864 Pages, 619 Illustrations. Phila and London W. B. Saunders Co., 1921. Cloth, \$9.00 net.

In this second edition of Dr. John Moorehead's book the resetting and rearrangement has improved it greatly. Now entirely up-to-date it sets forth the newer treatments brought to light by the war. The numerous war treatments have been sifted and only the best of them explained and favored. It pleases us to find that throughout his work on wounds he sticks to a few antiseptics, drains all wounds that are or are likely to be infected. Open air, sunshine and few dressings are recommended.

When illustrations, plates, etc., can take the place of words they are used. This is a great feature of his work. Nothing is considered too minor to picture. The plates and drawings on fractures and dislocations and their treatment is extremely complete. Brief and well chosen comment is given as to reduction and splinting. The best of the many forms of splints and apparatus used in this kind of work is shown by pictures or drawings.

Abdominal injuries and their treatment is conservative and to the point.

The author has filled a blank long needed by this thorough work on the small as well as the large things in surgery for the general man just as much as for the surgeon.

NORMAN P. GIES

**PRINCIPLES OF HYGIENE** A Practical Manual for Students, Physicians and Health Officers. By D. H. BERGEY, M.D., D.Ph., Assistant Prof. Hygiene and Bacteriology, University of Pennsylvania. Seventh Edition thoroughly revised. Octavo 556 pages illustrated. Phila and London W. B. Saunders Co. 1921. Cloth \$5.50 net.

The domain of hygiene grows so rapidly that text books get old within a few years and must be revised frequently in order to be up to date. Dr. Bergey's Principles of Hygiene, a reliable standard book for the last twenty years, has undergone many editions and the latest seventh edition, before us, has been thoroughly revised and the subject matter brought up to date as far as possible.

Dr. Bergey's Hygiene is still one of the few books that give the student and medical practitioner extensive and reliable information on all subjects of hygiene and public health without going into unnecessary details or entering into matters which are usually of little concern to the average practitioner. Perhaps this is why it seems to the reviewer to be an error on the part of the author to have introduced into the new edition fragmentary data on poison gases and other military and war hygiene. A general text book on Hygiene should omit it seems to us all references to such matters, as they are of very little value to the military physician and of still less value to the physician in peaceful pursuits. Moreover after the next war, there will probably be nothing left of Hygiene but a mortality census.

Too little attention has been given by the author to the important questions of vitamins in diet, to the role of carious teeth in disease, and the important subject of industrial fatigue.

It seems to be a waste of good paper to pad a book of 500 odd pages with more than fifty pages of quarantine laws, rules and regulations.

G. M. P.

**INJURIES TO JOINTS** By Col Sir ROBERT JONES, C.B., ChM., D.Sc. Second Edition, Second Impression Oxford University Press, New York, 1921 \$2.00

In this little volume Sir Robert Jones has given us a very valuable treatise on the subject of joint injuries. It is written in his usual brief but concise style. The author has had an exceptionally large amount of experience in the diagnosis and treatment of joint injuries. In this book he passes on to us the benefits that he has derived from those experiences. The earlier chapters which are particularly valuable deal with the general considerations of principles of diagnosis and treatment. In the later chapters the author considers practically each individual joint of the trunk, upper and lower extremities separately.

Although originally intended for the use of surgeons entering the military ranks from civil practice during the war, we are sure many will find it a great help in diagnosing and treating many joint injuries encountered in every day and especially industrial practice. It will be a very valuable addition to any physicians' library.

J. B. L'EPISCOPO

**OPTIMISTIC MEDICINE, OR, THE EARLY TREATMENT OF SIMPLE PROBLEMS RATHER THAN THE LATE TREATMENT OF SERIOUS PROBLEMS** By a Former Insurance Man F. A. Davis Company, Philadelphia, Pa., 1921 Price, \$3.00

This volume, by an anonymous writer, has as its main themes the importance of the maintaining or regaining of health, the necessity for the clearing up of the "No Man's Land" which lies between the technical knowledge of the physician and the legendary ideas of the average layman, the now universally accepted advisability of periodic medical examination, especially of individuals in later life, and finally the vast superiority of prophylactic treatment over the curative.

One very true statement made is that no complaint which brings a patient to a physician's office should be passed over jocularly, or as trivial, until all means of careful diagnosis have been applied.

Originality bristles forth from this frankly unusual book and it is to be hoped that some of its laudable objects and aims may be accomplished.

**THE AMERICAN YEAR-BOOK OF ANESTHESIA AND ANALGESIA, 1917-1918** F. H. McMECHAN, A.M., M.D., Editor. Surgery Publishing Co., New York City, 1920 Price, \$10.00

Dr McMechan has succeeded in presenting a highly interesting collection of authors' papers embodying the results of much research and detailing the practice of some of our best known anesthetists. Naturally there could not be included all which has been written during the past few years, but the volume concludes with a most valuable index of the 1917-1918 literature. There are altogether sixty-four articles grouped in twenty chapters. The war gives fourteen papers from both American and English anesthetists who were at the front. French experts report their practices and opinions. Chapters 14-19 are given to various forms of local anesthetics and one dealing with their pharmacology and physico-pathology. The book represents the ultra technical questions of Anesthesia, and naturally tempts for a perusal only the expert. Yet it would be a splendid feat for his own edification if a general practitioner (and some surgeons, too, for that matter) would take the time to linger over these pages and consider what implications the science of anesthesia comprises. No doubt the scant attention which is at the present time given to the subject is due to much ignorance.

A F E

**HEART AFFECTIONS, THEIR RECOGNITION AND TREATMENT** By S. CALVIN SMITH, M.S., M.D. Illustrated. Military references with the permission of the Surgeon General F. A. Davis Company, Philadelphia, Pa., 1920 \$5.50

Clear, concise, thorough, practical, accurate—these are the terms which the reviewer would use concerning this book. Not a text-book for the beginner, but a reference book for one caring for cardiac patients. All descriptions are concise and accurate, with no confusion concerning doubtful theories, the explanations and deductions are made from the author's experience. The charts and differential diagnosis tables are well expressed. The chapters on arterio-sclerosis, valve lesions and consequent myocardial changes are excellent. The non-medicinal treatment is rational and leads to results, the size of the book prevents the author telling much of detail concerning his medical care of these patients.

This book will be useful to review cardiac conditions, and is well worth careful study. Typographically excellent, good paper, large print, fine illustrations, in addition to this carefully written, readable, instructive and logical.

HENRY M. MOSES

**THE PSYCHOLOGY OF THE SPECIAL SENSES AND THEIR FUNCTIONAL DISORDERS** The Croonian Lectures delivered before the Royal College of Physicians, June, 1920. By ARTHUR F. HURST, M.A., M.D., Oxon., FRCP. Oxford University Press, New York City, 1920 Price, \$5.00

This volume deals with functional disorders of the special senses as seen in soldiers in the British Military Hospitals.

The author agrees with Babinsky in his conception of the nature and origin of hysteria, that it is due purely to suggestion on the part of the examining physician. He believes that hysteria is not an entirely abnormal condition, but that anyone under the influence of a sufficiently powerful suggestion will develop hysterical symptoms. He takes up the various manifestations of hysteria and shows how they may be cured by psychotherapy. The section dealing with hysterical anaesthesia following the anaesthesia caused by injury to the peripheral nerves is especially good. His methods of re-education in hysterical deafness and blindness are very important and practical. It is true of course, that these men were under military discipline, but the reviewer believes that the same results can be obtained in civilian life although it may take a little longer.

The author's attitude in regard to Head's areas of hyperaesthesia in abdominal conditions is highly interesting and his experience with ten cases operated on by Moynihan for duodenal ulcer in that he had failed to find any cutaneous hyperaesthesia, although the ulcers were found at operation, seems to prove his contention that this hyperaesthesia is purely a matter of suggestion at the hands of the examining physician. The author does not maintain that Head's areas are always produced by the suggestion of an observer looking for hyperaesthesia in a certain zone, when the patient is unduly open to suggestion of the kind, owing to abnormal suggestibility and to the presence of symptoms such as pain, which draw his attention to the area as a probable source of the disease, but he believes that they occur so rarely in diseases of the oesophagus, stomach, intestine, liver and pancreas as to be of no diagnostic value.

The book is well written and the author's cases are convincing. It can be read profitably by the surgeon, urologist and ophthalmologist as well as by the neurologist.

S R L

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL 21, No 9

NEW YORK N Y

SEPTEMBER, 1921

## HYPERTHYROIDISM IN PREGNANCY \*

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SINCE it has become thoroughly established both on experimental and clinical grounds that there is a distinct inter-relation in function of certain of the ductless glands, it is not at all surprising that hyperthyroidism and pregnancy should have an effect upon each other. In pregnancy there is a very profound change in the anatomy and physiology of the ovaries and uterus. One might expect therefore that this change would be associated with functional disturbances in the thyroid gland, which is one of the most important and also one of the most sensitive of all the endocrine glands to changes in the organism. Erdheim<sup>1</sup> has shown that in pregnancy the pituitary gland not only enlarges but also undergoes very remarkable alterations in its histological appearance. He showed that the characteristic granular eosinophilic cells undergo retrogressive changes while the chief or chromophobe cells hyperplase and hypertrophy to form the abundant, large, clear cells which he calls the "pregnancy cells" and which, after pregnancy, again undergo atrophic changes with restoration of the normal histology of the pituitary gland. In fact, the pituitary gland has been known to enlarge to such an extent in pregnancy as to cause pressure symptoms upon the optic chiasm with consequent bitemporal hemianopsia.

Atrophy and destruction of the pituitary gland is well known to result in amenorrhea, sterility and loss of libido. Similarly again the partial removal of this gland in young animals, such as the dog, results in failure of sex development with absence of ovulation in the female and a consequent sterility. It is reasonable to suppose that the thyroid which in many respects is even more liable than the pituitary should be similarly involved by changes in the function of the ovary. Since it has been shown that in pregnancy there is a physiological activation and increased metabolism of the tissues of the body generally and of the endocrine glands in particular, it would seem very likely that patients during pregnancy particularly in the latter months and in the puer-

perium, should present symptoms of hyperthyroidism, such as nervousness of varying degrees, irritability, mild tachycardia, and possibly tremor. These symptoms could readily result from a mild physiological thyroid hyperactivity which generally subsides after the puerperium. We know that the thyroid gland enlarges not only during pregnancy, but also at the menstrual period, at which time symptoms of nervousness, irritability, depressions and mild tachycardia are common. I have seen many instances of pathological forms of hyperthyroidism in which the disease had its onset immediately or very soon after childbirth.

A statement which I have frequently heard is that the patient was perfectly well up to her first pregnancy, during the course of which she developed nervousness and some tachycardia which continued after delivery and led directly into one of the outspoken types of thyroid pathology with hyperthyroidism, such as exophthalmic goitre. Again, in the case of adenoma the small lump in the neck was first noticed during or after the first pregnancy. Undoubtedly pregnancy exerted a harmful influence upon the gland in these cases. When an active adenoma has previously existed we often obtain a history of activity with hyperthyroidism beginning with the first pregnancy. At the same time the adenoma is seen to increase in size, due to hypertrophy and hyperplasia, and it is not uncommon to have new adenomatous nodules become visible and palpable. This activity, as evidenced by growth of the adenoma and by symptoms of hyperthyroidism, will often subside only to be brought out again by a subsequent pregnancy. I have seen this history repeat itself as many as six or seven times with a gradual increase in size of the original adenoma after each pregnancy, and often with the appearance of new tumors. In the presence of an already active adenoma, pregnancy very commonly exacerbates the hyperthyroidism a fact which underlies the problem which is the subject of my paper.

Though pregnancy followed by exophthalmic goitre is not an uncommon occurrence pregnancy in the course of an active exophthalmic goitre is, in my experience, very uncommon indeed even though the patients in this group have not practiced contraception but would in fact have been happy to have children were this possible. I have

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4, 1921.

had, however, three instances of pregnancy occurring in the post-operative period of exophthalmic goitre. In one of these instances the patient had been operated upon four times, twice with ligations and twice with lobectomy with a very splendid result eventually. Seven years after the last operation the patient was practically entirely well. She was extremely desirous of having another child, although she had had three children previously before the onset of her acute hyperthyroidism. She became pregnant October, 1920, had an uneventful pregnancy for three and one-half months, then contracted a severe attack of grippe or possibly "flu" and miscarried. She recovered rapidly following this accident and is again in splendid health. I do not attribute the miscarriage in this case so much to hyperthyroidism as to the "flu," for she was doing very well before and is now doing well after her attack of "flu." The second case in this group is that of a young woman, twenty-eight years old, who after a single lobectomy performed in December, 1916, four and one-half years ago, for a very active exophthalmic goitre became quite well, subsequently married, became pregnant and went through an absolutely normal pregnancy, gave birth to a normal baby, and at no time before during or after labor developed any untoward symptoms whatever and is in good health today. The third case is that of a woman of thirty-eight years of age, who represents an extremely toxic case of exophthalmic goitre in whom no more than ligation and single lobectomy was done on account of the unusual toxicity of the case. She made a very considerable improvement, returned to her home, and about a year after her operation became pregnant with an unfortunate recrudescence of her active symptoms of hyperthyroidism, and after about four months developed such active symptoms of hyperthyroidism as tachycardia, tremor, restlessness, sweating and urticaria. She became so ill that her attending physician felt that an abortion was imperative to save her life. We see from these three cases that normal pregnancy with normal labor occurred in the young woman who had practically entirely recovered from her disease. In the case where the recovery was not so great and was complicated by an attack of "flu," the pregnancy was comparatively uneventful, but miscarriage took place nevertheless. In the third case, in which the improvement following operation was not so great, the symptoms of hyperthyroidism were again dangerously brought forth, the patient becoming very ill and requiring abortion as a life-saving measure\*.

The failure of conception in exophthalmic goitre I have regarded as a possible protective provision of nature, for should pregnancy occur, as it sometimes does, in the milder states of the disease, the symptoms are made much worse, and

in the toxic states of exophthalmic goitre, pregnancy is a very dangerous complication indeed, both as to the increase of symptoms of hyperthyroidism and the advancement of the disease and also from the point of view of danger to the fetus. The toxic products developed by the thyroid in exophthalmic goitre have a very disturbing effect upon the pelvic organs, as evidenced by the fact that in the earlier stages of the disease dysmenorrhea and more particularly menorrhagia are quite common. These symptoms seem to be the result of a stimulating action, whereas in the more toxic stages, a destructive action takes place upon the ovarian and uterine functions with a resultant failure of ovulation, amenorrhea and sterility. Whether or not this should be considered a protective provision of nature, the desirability of sterility in the higher grades of toxemia is unquestioned as a life-saving measure.

I shall speak now more particularly of pregnancy in adenoma cases since it is in these that the cure of the hyperthyroidism is so much more readily obtained than in exophthalmic goitre and the danger of operation from the point of view of effect upon the uterus is so much less. I have had no experience with the surgical treatment of exophthalmic goitre in the course of pregnancy, although I feel that even here, particularly in the milder states of toxicity, operation would be indicated. This statement would probably not hold for the severe grades of toxemia in exophthalmic goitre, but since patients belonging to this class so very rarely become pregnant this particular problem has fortunately not had to be faced. Therefore, what I have to say applies, as I said before, to adenoma and might possibly have to be modified when speaking of exophthalmic goitre. In adenomatous goitres we are dealing with benign encapsulated tumors occurring discreetly in the thyroid gland and not

\* Since presenting this paper I have been consulted by a patient of thirty years of age, who was married in March, 1920, and has been suffering for five years with exophthalmic goitre symptoms, all of which had become definitely exacerbated as a result of her first and only pregnancy which is now of four and a half months' duration. On account of the toxicity of the disease in this patient, it was felt that the only safe procedure to follow in an operative way, as far as the treatment of her goitre was concerned, would be preliminary ligations followed by lobectomy. Since the pregnancy was four and a half months advanced, it was felt that there would not be sufficient time before the termination of her pregnancy for the two operations of ligation and lobectomy, and for the time interval which it was felt would be necessary for the patient to regain her strength and obtain sufficient improvement to make labor safe. Had the patient been perhaps, two and a half to three months pregnant there would be sufficient time, I feel sure for both operations and the consequent improvement to take place. It was left out of the question to allow the pregnancy to proceed in the presence of the activity which patient showed. In this case, therefore, abortion was recommended. Vaginal hysterotomy with emptying of the uterus was done by Dr. Polak, following which patient made a splendid convalescence and the exophthalmic goitre was not harmfully influenced. In fact, the patient seemed better after her rest in bed which followed the operation. This case illustrates the importance of early intervention for the surgical treatment of toxic goitre complicating pregnancy in order to allow time for both ligations and lobectomy and consequent improvement before the termination of labor. In a case less toxic than the one just mentioned I would feel that an immediate lobectomy could be done with safety.

involving the gland as such, whereas in exophthalmic goitre the whole thyroid gland undergoes hypertrophy and hyperplasia and represents a very different and much more serious disease. In adenoma cases exophthalmos is absent and vascular signs, such as thrills and bruits, are not found in the gland. There is usually a mild to moderate degree of nervousness and tachycardia with loss of weight, and the operation is curative and accompanied by very much less risk than in the case of exophthalmic goitre. These facts make the operation safe and also indicated, both for the relief of the hyperthyroidism and for the security of the pregnancy.

There is a very general impression among physicians today that it is dangerous to allow pregnancy to proceed in cases of hyperthyroidism both because of possible resulting miscarriage and because of deleterious effect upon the hyperthyroidism present. As a consequence, abortion is very often practiced. It is possibly true as I said before, that this practice is the correct one in exophthalmic goitre. I cannot say although I feel that even here operation, unless it appears unusually dangerous still holds out considerable hope for the relief of the hyperthyroidism and the continuance of the pregnancy. I wish to state, however, that operation is entirely feasible and proper in cases of adenoma, particularly in the earlier months of pregnancy as is borne out by some recent experiences. I wish to report three cases of operation upon adenomatous goitres with hyperthyroidism in pregnant patients, in whom the course of the pregnancy remained absolutely undisturbed the goitres were successfully removed the patients relieved of their hyperthyroidism, the anxiety of physician and patient regarding the later stages of pregnancy removed and normal deliveries with healthy babies secured. These cases were studied in conjunction with Dr. Alfred Beck, in the Surgical and Obstetrical Clinics of the Long Island College Hospital.

It should be particularly emphasized, for fear of misunderstanding that what I have said and wish to point out is not the advisability of operation upon all goitres in the course of pregnancy. The problem which I am discussing concerns only those goitres associated with a very distinct hyperthyroidism occurring in the course of pregnancy as is indicated by the title of this paper. We are naturally all aware of the occurrence of nodular goitres which are often partly degenerated or entirely cystic tumors and which have lost their activity by the process of degeneration and are, therefore, unassociated with hyperthyroidism. In these instances the inactive tumor has in no sense any bearing upon the course or safety of the pregnancy and therefore, to be

sure, does not require surgical interference. There is no more of a problem introduced here than if the patient did not have the goitre at all. Operation on such a goitre in the course of pregnancy would be distinctly contraindicated. We have all seen cases of this kind go through a perfectly normal pregnancy and labor, and I desire emphatically not to be understood as advocating operation in these cases. Let me emphasize once more that it is the hyperthyroid element caused by an active goitre, be that adenomatous or exophthalmic goitre, which is the factor of danger in the course of pregnancy or in the safety of the puerperium.

### CASE REPORTS

Three instances of operation upon patients with active toxic adenoma accompanied with hyperthyroidism, upon whom thyroid resection was done in the course of pregnancy, are reported below (cf. Cases I, II, and III).

**CASE I**—Mrs. R. R., age 32 housewife Hebrew Admitted to surgical service Long Island College Hospital, March 31, 1920. Discharged April 11, 1920. Diagnosis on admission Adenomatous goitre—mild hyperthyroidism. Complaint Nervousness weakness vomiting and probable pregnancy.

**F. H.** No ancestral history of goitre or of nervous disease.

**P. H.** Has had no serious illnesses in the past. Has always enjoyed good health. Has had frequent tonsillitis up to about six years ago, at which time tonsillectomy was done.

**Eyes.** Has been wearing glasses for past six years for a refractive error. Vision good.

**G. U.** Menstrues always regular lasting from two to three days. Began at 11½ years of age. During the past year the interval has been twenty six days. Has not menstruated during the past three months. Patient believes that she is pregnant. Examination by Dr. Alfred Beck confirms this. His examination shows breasts to be pigmented. Montgomery's follicles are present. Collostrum not present. The cervix is soft and in posterior position. A fibroid the size of a hazel nut is present in lower segment posteriorly and another the size of a walnut on the left side. The uterus is soft and the size of a three months pregnancy. Patient has been married for four months.

**Weight.** Best weight 130 to 134 pounds six to seven years ago. A year ago she weighed 125 pounds and six weeks ago 122 pounds. This loss of weight was evidently due to the vomiting of pregnancy and probably also to hyperthyroidism.

**Habits.** Good.

**Present Illness.** Enlargement of the neck was noticed about nine months ago at which time patient thinks the swelling was larger than it is at present. The swelling at first was in the middle of the neck and later the left side became enlarged. During this same interval she noticed nervousness which has become worse. There has been increasing weakness and tremor. Memory is good. No changes noted in the eyes which have always been somewhat prominent. Throbbing of the heart and tachycardia have also been noticed during the past few months. Perspiration and vasomotor changes



such as warmth of the hands and coldness of the feet, have also been present. The appetite was good before the pregnancy began. Bowels regular.

**Physical Examination** With patient lying quietly in bed, the temperature is 98, pulse 88, respirations are 28. Patient is a well-nourished woman of small stature. Height, 4 feet 11 inches. Weight, 120 pounds. There are no outward manifestations of nervousness. There is a slight throbbing of the large vessels of the neck and also of the precordium. Mucous membranes good color. There is no flush of the skin, which is normally warm and moist. There is slight hypotrichosis.

**Eyes** Slightly prominent. The lid slits are equal. Pupillary reactions are normal, von Graefe's sign is negative, and there is a slight weakness of the left internal rectus.

**Throat** Tonsil crypts evident. There is some slight reddening and also some exudate in the pharynx.

**Neck** Circumference over middle of the isthmus is 33 cm. There is a slight rounded fullness over thyroid, particularly on the left side. There is some throbbing of the neck vessels. On palpation one feels a nodule about the size of a large chestnut in the lower half of the swelling. Some smaller irregularities are also felt. In the left lobe low down and apparently toward the isthmus there is a rounded mass made up of numerous nodules. They are smaller than the single large nodule mentioned and are rather firm and do not give the impression of being cystic. A small artery is palpated on the lower left side. Over it a bruit is heard. No thrills felt or bruits heard elsewhere.

**Dermatographism** definitely positive.

No definite *retromanubrial* dullness.

**Chest** **Mammary Glands**—Montgomery's follicles are prominent. There is some increased pigmentation of the areola. No colostrum. Breast tissue readily felt. **Heart**—Nothing abnormal. Pulmonary examination negative.

**Abdomen** Outlines of liver and spleen normal. Upper abdomen tympanitic. There is some dullness just above the symphysis due to the enlargement of the uterus together with the fibroids which it is known to contain. One of these fibroid nodules is felt between the umbilicus and the symphysis just to the left of the midline.

**Extremities** Feet cool, soles damp. No oedema. There is fine tremor of the extended fingers. The patellar and Achilles reflexes are normal.

The blood picture is normal except for a slight mononucleosis. The urine examination is negative. The Epinephrin Hypersensitiveness Test develops a moderately definite response, indicating a moderate and definite hyperthyroidism. Cf. special test.

**Diagnosis** Definite moderate hyperthyroidism dependent upon an adenomatous goitre. Duration of hyperthyroidism about nine months with all symptoms distinctly exacerbated by pregnancy of about nine weeks' duration. A moderately positive epinephrin response. Multiple small fibroids of uterus but not considered of any special significance by Dr. Alfred Beck. The operation for adenomatous goitre was considered safe, in fact, indicated both for the relief of the hyperthyroidism and for the protection of the pregnancy in its later stages.

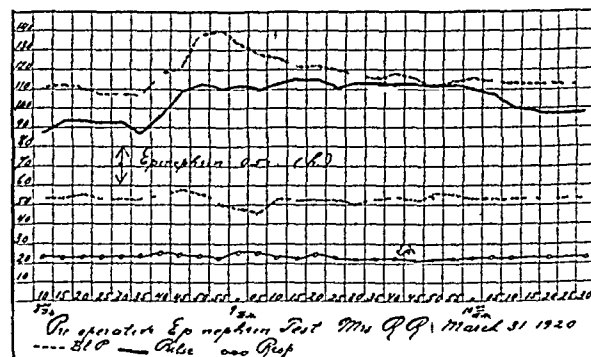
**April 3, 1920** **Operation** Preliminary morphine. Under gas, oxygen and ether anesthesia, resection of lower half of both thyroid lobes was carried out, thus

removing the adenomatous gland. One adenoma, partly degenerated, the size of a chestnut was found on the right. A number of small adenomata on the left together with one larger one partly degenerated were removed. Closure was made without drains. The pulse before anesthesia was 130. When anesthesia was established, it fell to 95, and gradually in the course of the operation went to 160, and finally at the end of the operation returned to 140. Patient stood the operation very well indeed.

**Post-operative Course** At the end of the first day post-operative the pulse had returned to 100. There was a minimum of vomiting and of discomfort. Patient had a splendid convalescence and was sitting up eight days after operation. On the evening of the second day following operation and continuing for thirty-six hours there were definite uterine pains which were controlled by morphia. These were not severe and at first were associated with some diarrhoea. After this period there were no further symptoms of any kind. Eight days after operation the pulse averaged 90. There was considerable improvement in the nervousness and in the throbbing of the heart. After the operation there was a remarkable improvement in the vomiting associated with the pregnancy, and also a very distinct improvement in the appetite.

It is interesting to note that there was a very prompt improvement in the symptoms due to her pregnancy, namely, the almost complete loss of vomiting and return of appetite, following immediately upon the improvement of the hyperthyroidism. I feel almost certain that serious trouble would have occurred in this case if the pregnancy had been allowed to proceed without thyroid resection, for since the beginning of the pregnancy there was a rapid increase of disturbing symptoms due to the hyperthyroidism, and I feel quite certain that either the hyperthyroidism would have become quite severe or there would have been a miscarriage or possibly both, at the end of which time we would have the patient distinctly weakened by her experience. We would have lost the child, and would still have the problem of hyperthyroidism on our hands. As it is the adenomatous goitre and the hyperthyroidism are cured, the patient has a healthy child and she herself is in excellent physical condition.

Plot of test in case of Mrs. R. R.



**Interpretation** Definitely positive response to Epinephrin Hypersensitiveness Test as evidenced by rather striking rises of both pulse and blood pressure that are sustained over an hour's period with restitution to normal. Respirations are not so strikingly affected (cf. diagram and observations above).

Subjectively the test is also definitely positive as evidenced by tremor, sweating, weakness, vascular manifestations and abnormal sensations.

Mrs R R

*Epinephrin Hypersensitivity Test*

Time	Pulse	Resp	B P	Remarks
8 10	88	24	110/54	Patient says she feels slightly 'shaky' all the time. Has a slight tremor of fingers. Hands are quite warm and moist. No palpitation or tachycardia present. Slight throbbing of carotids and slight exophthalmos present. Feels a little nervous and worried.
8 15	94	24	112/54	
8 20	94	24	110/56	
8 25	94	24	108/54	
8 30	0 cc Epinephrin chloride solution injected subcutaneously			
8 30	88	22	108/54	Thinks that heart is not beating quite so hard. No tachycardia. Says arm feels weak.
8 35	96	24	118/56	Heart beating faster. Some palpitation. Sense of pressure over precordium. Fine tremor of extended fingers. Throbbing of carotid vessels increased. Feels a little dizzy.
8 40	108	26	120/58	Says heart is beating very hard. Considerable palpitation and tachycardia. Chest heaves with each heart beat. Pulsations of carotids increased. Hands feel cooler. Tremor marked. Dizziness still remains. Feet warm.
8 45	112	26	138/56	
8 50	110	25	140/54	Patient says it feels as though every muscle of her body is beating. Marked heaving of the chest and increased throbbing of carotids. Marked palpitation and tachycardia. Says it is 'difficult to breathe'. Has a choking feeling. Keeps left hand on heart.
8 55	112	24	134/50	Feels like a hammer hitting her in the back. Still marked tremor. Slight twitching of eyelids and tremor of lips. Still marked palpitation present.
9 00	110	26	128/48	Patient feels somewhat depressed. Heart still pounding vigorously. Hands and feet are now becoming warmer. Throbbing of carotids about same. Tremor of fingers now slightly diminished. Says she feels weak. Feeling of pressure over precordium slightly diminished. Breathing still difficult but slightly diminished.
9 05	114	26	126/46	No changes noted. Patient feels about the same.
9 10	116	24	122/52	Palpitation decreasing. Still tremor of fingers. Choking feeling less.
9 15	116	24	122/52	Still feels as though all her muscles are beating. Throbbing of carotids less. Feeling of cardiac constriction less. Still feels weak.
9 20	110	25	120/52	Feels body perspiring. Heart beat less noticeable to patient. Dizziness has now entirely disappeared. Beating of muscles diminished.
9 25	114	23	118/52	
9 30	114	22	116/50	Palpitation decreasing. Tremor of fingers diminished. Does not feel quite so weak. Pulsations of carotids markedly diminished. No tremor of lips or lids. Less perspiration.
9 35	112	22	118/52	
9 40	112	22	116/54	Pupils moderately dilated. Still continues to feel better than previously. Feeling of constriction over heart has not disappeared. Tremor of fingers continues. Feels slightly tired. Does not feel thirsty. Hands and feet now about normal.
9 45	112	21	112/52	
9 50	112	22	114/56	Feels about same as before injection. Mouth is dry. Feels tired and weak.
9 55	112	22	116/56	Still some perspiration. Palpitation now hardly noticeable. Tremor of fingers same as before injection. Signs now are about same as at beginning of the test.
10 00	110	23	115/54	
10 05	108	24	115/54	Patient gradually returning to normal. All subjective symptoms have now about disappeared.
10 10	100	24	114/54	
10 20	96	24	114/54	
10 30	98	24	112/54	At close of test patient feels about the same as at start of procedure. No palpitation or tachycardia felt now. Pupils are about of same size. Feet and hands same as at start. Tremor of extended fingers same as usual. Pulsation of carotid has returned to normal extent for her. Patient does not feel so weak but feels quite tired. No tremor of lips or lids present. Nervousness about the same as at start. Patient quiet and fairly relaxed.
10 40	96	24	110/54	

**CASE II**—Mrs C E, Spanish, age 37, housewife. Admitted to Maternity Service, L I College Hospital, September 25, 1920. Discharged October 26, 1920. Diagnosis on admission: Pregnancy of seven months' duration. Toxic adenoma of the thyroid with definite hyperthyroidism. Complaint: *Tumor mass* in the neck, *nervousness* and *tachycardia*. On account of the fact that patient spoke only Spanish and was of a low grade of intelligence it was difficult to obtain a good history.

**F H** Negative

**P H** Nothing of importance obtained from history.

**Marital History** Patient was married 17 years ago. She has had seven children of whom only one is living. All the labors seem to have been normal. There were no miscarriages. She is now six to seven months pregnant.

**Thyroid History** The tumor mass in the thyroid region was noticed after her first pregnancy 16 years ago. It has persisted throughout her married life and has grown gradually somewhat larger. At the present time she complains of nervousness, tremor, palpitation and weakness. Bowels regular. No symptoms of genito-urinary origin.

**Physical Examination** Patient is a woman of average height, is pale, apparently nervous, shows frequent movements of the fingers, twitching of the facial muscles and throbbing of the carotid arteries and precordium. Some dyspnoea. No flushing. Patient quite excitable.

**Cutaneous** No oedema of the eyelids. There is no apparent increase of pigmentation other than that due to pregnancy. The palms are moist and the fingers warm.

**Eyes** There is nothing striking in the appearance. There is a suggestion of von Graefe's sign. No exophthalmos. She converges well. Wrinkles forehead on looking upward. Eye movements and pupillary reactions normal.

**Neck** There is a globular enlargement about the size of a large egg in the left thyroid lobe and isthmus region. This lump rises when patient swallows. The larynx and trachea are visibly and palpably displaced to the right. There is a moderate throbbing of the entire neck and of the thorax. As patient coughs there is an evident laryngeal stridor. A slight thrill is palpable at the left upper and also at the left lower thyroid poles. No definite thrills felt on the right. A slight bruit is heard over left upper pole but none elsewhere. The tumor mass has a smooth surface, oval outline and an elastic feel. It is moderately firm. The larynx and trachea are displaced to the right. The isthmus of the thyroid is thin and contains no nodules. There are no nodules felt in the right lobe.

**Dermatographism** Definitely positive.

No retromamillary dullness.

**Lungs** No abnormal findings made out.

**Heart** There is an evident precordial throbbing with a diffuse apex impulse. No thrills felt. Percussion shows a slight enlargement to the left but none to the right. On auscultation at the apex no definite murmurs heard. There is a slight systolic blow just to the left of sternum in 2nd and 3rd interspaces. Toward the aortic area there is a rough systolic blow becoming almost of a "to and fro" character. The apex beat is loud and forcible. The 2nd aortic sound is faint. The pulmonic is loud and sharp.

**Abdomen** Reveals nothing abnormal on examination. Palpation and percussion reveals the uterus above the symphysis about the size of a seven months pregnancy.

**Pelvic Examination by Dr. Alfred Beck** There are no abnormalities made out on external or internal pelvic examination. The uterus is the size of a seven

months pregnancy. There is a definite fine tremor of extended fingers.

**Clinical Findings** With patient at rest for the past week the pulse has averaged 110 to 120. The temperature varies between 98 and 98.8. Respirations vary from 23 to 30. The radial pulse is synchronous with the apex beat, regular in frequency and volume and of good force.

**Blood** R B C, 4,160,000, W B C, 8,800, Hgb, 72 per cent. Differential count: P M N, 66 per cent, S L, 32 per cent, Trans, 2 per cent. Urine shows trace of albumin. No sugar. Otherwise negative. Blood pressure: Systolic, 120, diastolic, 62. X-ray of the chest shows a possible slight enlargement of the heart both to the left and to the right. There is no mediastinal shadow.

**Summary** A definite moderate to marked degree of hyperthyroidism due to an adenomatous goitre. The symptoms of hyperthyroidism have been particularly exacerbated during the present pregnancy which is of 6½ months duration. Operation for removal of the adenomatous goitre advised. Pregnancy to continue.

**Operation, October 4, 1920** Preliminary morphia and atropin. Gas, oxygen and ether anaesthesia. Pulse was 150 before the anaesthetic was begun, due to nervousness apparently. When anaesthetic was established the pulse was 120 and during the operation came down to 115, and at the end of the operation, which consumed an hour, the pulse was again 120. Respirations began at 20 and rose to 30, and at the end of the operation came back to 20. A clean enucleation of a large adenoma the size of a large egg which had caused complete atrophy of the left thyroid lobe, was done. The right lobe and the isthmus appeared normal. Closure was made without drainage and patient stood the operation very well indeed.

#### POST-OPERATIVE COURSE

**October 5, 1920** There was a moderate reaction following operation. On the afternoon of the day of operation highest pulse reached at any time was 140. Temperature was 101. Patient in good condition.

**October 6, 1920** Pulse this morning 100 to 110. Temperature is normal. Patient in very good condition. Has had no cramps, bleeding, or any evidences whatever of disturbances of gestation.

**October 15, 1920** Patient has made an uneventful recovery. Pulse continues slightly elevated 100 to 110. There are no signs or symptoms whatever that the pregnancy has in any way been disturbed. Patient is less nervous and agitated than she was before operation.

**October 26, 1920** Patient discharged today, 22 days following operation. She states that she feels better, sleeps well and is very much less nervous. Temperature continues normal. Pulse varies between 92 and 100. Patient in very good condition in every way.

**Pathological Examination** The tumor mass consists of a single large adenoma with a thick fibrous capsule. On cross-section the tissue is of a soft, pulpy character, pink in color and shows numerous small areas of beginning degeneration. Near the periphery of the tumor the tissue is more healthy in appearance. In the microscope the adenoma is seen to be composed of hyperplastic and hyperplastic tissue which is rich in mitochondria. The colloid varies in amount in different portions of the tumor. The mitochondria are present in excessive numbers in the cells of the adenoma, indicating the functional activity of the tissue.

**Interpretation** Adenoma of the thyroid with considerable clinical evidence of activity verified by the pathological appearance.

**Further Course** Patient gave birth to a normal healthy child at the normal time. There was a slight increase of the pulse rate and in the nervousness just

preceding and after delivery with prompt subsidence again in a few days following labor, following which the mother and the baby presented a normal course.

**Summary** Patient illustrates the acute exacerbation of hyperthyroidism in the course of an adenomatous goitre of long standing. Operation upon the adenoma with its removal at the time when patient is 6½ months pregnant is followed by a moderate reaction post operative, with a rapid subsidence of the acute symptoms of hyperthyroidism and the continuance of a normal pregnancy, with subsequent delivery of a normal baby. No untoward symptoms developed before or after labor.

**CASE III—Mrs H Y** housewife. Admitted to surgical service of the Long Island College Hospital December 6 1920. Discharged December 19, 1920. Diagnosis on admission: Adenomatous goitre. Pregnancy. Complaint: 'Swelling and pain in the neck' and 'nervousness.'

**F H** Mother living age 70. Supposed to have chronic tuberculosis.

**P H** Patient noticed a swelling of the neck 5 years ago. During the past 5 years she was treated for goitre without benefit. Applications of iodine were made to the neck until dermatitis was produced. Under the assumption that the swelling of the neck was of tuberculous nature patient had been receiving Tuberulin injections. No change was produced in the goitre. Patient has suffered somewhat with digestive disturbances which may have been due to chronic appendicitis. Bowels regular.

**Marital History** Patient has been married for 19 years. Has one child 17 years of age. There have been no miscarriages.

**Menses** Regular as a rule. There are some digestive disturbances at the time of the menstrual period. Also some enlargement of the neck with choking noticed at this time. Report from patient's physician states that the uterus is retroverted and the ovaries are normal.

**Height** Best weight 134 pounds. Present weight 128. Her weight has remained about the same for a number of years.

**P I** The enlargement of the neck principally on the right was noticed 5 years ago. Patient has suffered some pain on the right side of the neck. Slight nervousness has been present during the past 6 months particularly since an attack of flu which she had at that time. In the past 2 weeks the goitre has gotten larger and produces definite choking sensations. As the patient is present—she says she cannot work without fatigue. Some dyspnoea. Throbbing of the neck at times but not of the heart. There is increased irritability. She is sensitive and worries over trivial matters. Memory not as good as formerly. No emotionalism. No change in the appearance of the eyes. No tremor.

**Physical Examination** Patient is a woman of 39 years of age of average height and in good nutritional condition. Slightly nervous. **Cutaneous**—There is no vasomotor flush. No oedema of the eyelids and no increased pigmentation. The palms are normally damp.

**Eyes** Slightly prominent. The eye slits are not widened. She wrinkles forehead upon looking upward. Mobius and von Graefe signs are negative. The pupillary reactions are normal. Eye movements normal.

**Mouth** Tonsils are not infected. Teeth evidently very soft. Considerable dentistry done. Slight pyorrhoea.

**Neck** Greatest circumference 33½ cm. There is a rounded globular enlargement on the right side of the neck encroaching upon the isthmus of the thyroid gland. No enlargement seen on the left. There is no unusual throbbing of the carotids. The enlargement on the right is about the size of a lime. There is another small nodule just to the right of the thyroid cartilage apparently in upper pole of the thyroid. No thrills are

palpable at the poles or over the gland. The enlargement in the right lobe is composed of numerous separate nodules which give the impression of an adenomatous goitre. The left lobe is readily palpable, slightly enlarged and nodular. No bruits heard.

**Dermatographism** positive. There is no retroauricular dullness.

**Thorax** Lungs show no abnormal findings. **Heart**—P M I not seen but best felt in 5th I S just outside of the m c l. There is no enlargement by percussion. At the apex a soft systolic murmur is heard which is not transmitted and there is also a soft systolic murmur over the pulmonic area. **Breasts**—The breasts are moderately large and firm showing a considerable amount of pigmentation. The nipples are large and erect. The breasts give the impression of the hypertrophy of early pregnancy.

**Abdomen** There is a rounded fullness particularly between the umbilicus and the right anterior superior spine less prominent on the left. A pregnant uterus is felt more to the right than left is soft elastic and not tender except on deep palpation on the right. Dullness in the flanks. **Liver** and **spleen** not felt. Dullness over lower abdomen corresponding to the enlargement of uterus. A moderate uterine souffle is heard about midway between umbilicus and symphysis.

**Extremities** There is a slight fine tremor of extended fingers. Hypotrichosis of the legs. No oedema of shins. Hands and feet cool. No increased pigmentation.

**Reflexes** Plantar reflexes slight. K K moderately active and equal.

**Clinical Examination** Blood picture as follows: R B C 3,600,000. W B C 9,160. Hgb 72 per cent. P M N 76.5 per cent. L 1, 5 per cent. L S 20.5 per cent. Transfusions 2.5 per cent. The urine is negative. Pulse is 84 to 88. Temperature varies between 97 and 98.8. Respirations 24. The **Eupnehrin Hypersensitivity Test** shows a mild reaction in keeping with mild hyperthyroidism which is present.

**December 10 1920 Operation** Preliminary hypodermic of morphine and atropin given. Gas oxygen and ether anesthesia. On the right side a very thorough resection was done there being little if any thyroid tissue remaining. It appeared as though the entire lobe had been practically destroyed. There were numerous small adenomata varying in size from that of a pea to that of a chestnut the larger ones being either partly degenerated or cystic. The smaller ones appeared more healthy. On the left side the thyroid lobe was moderately enlarged and contained a small number of adenomata. About one third of the thyroid lobe was left on this side. This appeared to be free from adenomata. Patient stood the operation and the anesthetic very well. The highest point reached by the pulse before operation and during the induction of the anesthetic was 106. During the operation the pulse came down to 85 and at the end of the operation was 80.

#### POST OPERATIVE COURSE

**December 12 1920** There was a mild reaction following operation. Highest temperature reached was 101 practically no elevation of the pulse. Very little vomiting followed the operation.

**December 14 1920** Patient is quite comfortable. Temperature 98. Pulse 78. Respiration 20. No untoward symptoms.

**December 18 1920 Examination by Dr Polak** Perineum slightly relaxed. Cervix in posterior position soft and shows a bilateral laceration. Uterus enlarged to size of 5 months pregnancy. Findings: Pregnancy of five months' duration.

**December 19 1920 Discharge Note** It is now nine days after operation. Patient has made a very satisfactory convalescence. Slight vomiting on first day none since. At no time were there any symptoms referable

to the uterus. No cramps at any time. Highest temperature reached after operation 101. Highest pulse reached 96. During the last few days temperature averaged 98, pulse 80, to 85, respiration 23, to 24. No discomfort in neck, no nervousness, no choking sensations, she breathes better. Slight weakness from operation. Queer feeling in chest has disappeared, no throbbing, no irritability.

*Post-operative Epinephrin Test*, 8 days after operation, shows early improvement.

Post-operative blood picture as before. Pulse 96, with patient sitting up. Slight pallor at present, neck well healed. Faint fine tremor, palms damp and cool. K K equal and about normal. Appetite good, bowel movements normal.

May 1, 1921. Dr. V. Taylor reports that patient has given birth to a normal healthy baby, and that before, during and after labor there were no untoward symptoms, nor were there any disturbing symptoms during the latter months of pregnancy.

With regard to the more direct handling of the cases and the technical points to be observed, I may say that the early months, about the first four months of pregnancy are the more favorable time for operation since at this time the placental attachment is the firmest. A preliminary treatment with morphia and atropin is given followed by gas and oxygen anaesthesia with a very small amount of ether. The operation is carried out as expeditiously and with as little trauma as possible, and subsequent to operation morphia is again given in sufficient amounts to keep the patient quiet and to prevent contractions of the uterus. In one patient who had several small uterine fibroids there were transient crampy pains of a very moderate degree for a day or two, following which she was entirely comfortable. In the two remaining cases there were no symptoms at all referable to the uterus. There was no post-operative nausea or vomiting of any consequence, and the patients in twenty-four to forty-eight hours felt quite normal again, were able to take nourishment and made a very rapid convalescence. All three patients gave birth to normal healthy babies and were themselves quite well during the puerperium.

The question of the treatment of hyperthyroidism and pregnancy when the two conditions occur together is a difficult question and cannot be answered in a few words. The problems involved are many. The situation is much more serious when pregnancy and exophthalmic goitre occur together than in the case of an adenomatous goitre. The decision as to treatment must be made early, particularly in exophthalmic goitre, since the disease is progressive and in the later months there is serious danger of acute hyperthyroidism, of miscarriage, or of premature labor, and even of death of the patient. Granted even that a healthy child might be borne, we still have a serious case of exophthalmic goitre to treat in a nursing mother who would be a poor operative risk at this time. In a case of mild toxæmia in

exophthalmic goitre, and up to the fourth month of pregnancy, I feel that operative treatment of the goitre is a relatively safe procedure. In the severer grades of toxicity, however, abortion seems to be the proper treatment, both to prevent a serious form of exophthalmic goitre, a subsequent miscarriage, and even to save the patient's life.

In the case of adenoma of the thyroid gland, operation on the goitre is a far safer procedure and should preferably be carried out about the fourth month of pregnancy. Operation under these conditions cures the hyperthyroidism, makes the subsequent pregnancy and labor safe and puts the mother in the best of condition for the nursing of her child. In brief then, abortion should not be done as a general measure in all cases of hyperthyroidism. In cases of adenoma of the thyroid and in the mild form of exophthalmic goitre, the conservative treatment should be followed—namely, operation on the thyroid gland in the earlier months of pregnancy, securing thus, a safe pregnancy, and a normal baby. Abortion should be restricted to those cases in which there is a marked increase in the signs and symptoms of hyperthyroidism of such a degree as to render operation unsafe, and in all the more toxic types of exophthalmic goitre.

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### THE INCIDENCE OF PULMONARY EMBOLISM AND THROMBOSIS FOLLOWING HYSTERECTOMY FOR MYOMATA UTERI

(From the Clinic of the Woman's Hospital)

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#### INTRODUCTION

AS Harvey was the discoverer of the circulation of the blood so Virchow is the discoverer of the pathologic conditions of the blood thrombosis and embolism.

During the years 1846 to 1856 Virchow gave to the world his doctrine of embolism based upon "anatomical, experimental and clinical investigations which for completeness, accuracy and just discernment of the truth must always remain a model of scientific research in medicine." I shall quote both Virchow and Welch freely in all that pertains in this paper to the pathology of these conditions.

#### PATHOLOGY

We may define an embolism according to Welch as an impaction in some part of the vas-

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4, 1921.

cular system of any undissolved material brought there by the blood current. It may be solid, liquid or gaseous, infective or non-infective. An embolism is generally understood to be a part or the whole of a detached thrombus which in turn may be defined as a solid mass or plug formed during life in the blood vessels or heart from the constituents of the blood but an embolus may also be made up of bits of tissue, fat tissue cells, or parenchymatous cells, fragments of diseased heart valves or foreign bodies transported through the arterial system and sometimes by the lymphatic system. The size and shape of the embolus and the direction and volume of the blood stream determine the route, the size and angle of the branches of the blood vessels determine the stopping point of the plug. Retrograde or paradoxical embolism occurs when an embolus is transported in the veins in a direction opposite to that of the blood stream and is caused by a back current produced by pressure on the vein when there is some obstruction to the flow as a tumor or in severe coughing, especially if the valves in the veins are defective.

The result of an embolus depends upon its size and septic character. If the plug is large enough to completely obstruct a main branch of the pulmonary artery or one of the coronary arteries of the heart or the bulbar vessels death is immediate. If obstruction is not complete the embolus in its turn becomes then the starting point of a secondary thrombus and may completely block the vessel or if it has lodged at the bifurcation of a vessel a "riding embolus," it may in time block both branches. If the emboli are so small that only arterioles or capillaries are plugged or if anastomoses are abundant no circulatory disturbance of any consequence results but if no adequate collateral circulation be established the result to that part supplied by the plugged end is degeneration or death. An infarct is then an area of dead tissue perhaps best described by Cohnheim as a "coagulative necrosis." It is usually cone or triangular shape with its base toward the periphery of the organ and is sharply circumscribed and hard in consistency, white, yellowish white or red in color if hemorrhage has occurred. If the venous pressure is high and the resistance in the tissues low as in the spongy tissue of the lungs or in the intestines the infarct is hemorrhagic but the process of coagulation necrosis is the same whether the infarct is red or white. If the embolus be septic this coagulation necrosis furnishes a favorable nidus for local or pyemic infection.

The most constant symptom of embolism is pain which has been attributed to various causes but the most probable seems to be local irrita-

tion produced by the sudden distention caused by the plugging of the vessel and the irritation to sensory nerve endings in the vascular wall. The pain is sudden in occurrence, sharp in character and may be accompanied by chills or chilly sensation more especially is this so if the embolus be septic. Other symptoms depend upon the artery obstructed together with the degree of local anemism and infection produced.

It is not the purpose of this paper to deal with the terminal result of embolism. The sudden onset of a pulmonary embolus after the apparently complete recovery from an operation with the blocking of the trunk of one or both main branches of the pulmonary artery accompanied by sudden intense dyspnea, cyanosis, exophthalmos, syncope and death does not demand differential diagnosis. The condition could not be mistaken—nor the picture once seen forgotten. But while statistics are very definite as to the occurrence of embolism with fatal results they are not at all clear as to the occurrence of post operative pulmonary conditions which may possibly owe their origin to small emboli in the lungs. The presence of an embolus is known only by the disturbance it causes and based upon this the order of frequency is the pulmonary, renal, splenic and cerebral vessels less frequently the iliac lower extremities, hepatic and gastric arteries, the mesenteric and coronary arteries of the heart. An infarct in the liver, spleen or kidney may not give physical signs sufficiently definite to warrant the diagnosis because of the free anastomoses in these organs unless an embolism in some other part of the body arouses the suspicion but a perisplenic friction rub or sudden appearance of blood and pus in the urine may help to establish the diagnosis of embolism especially if disease of the left heart exists. The frequency of pyelitis following operation may perhaps be due to infected emboli for Welch has shown the kidney to be the most frequent seat of abscesses following intravascular infection of the pyogenic staphylococci in rabbits. While embolism and thrombosis of the mesenteric arteries are not common their occurrence might perhaps be more often found if sought for as Watson collected eight cases which had occurred in a single year in Boston. The collateral circulation is greater in that portion of the intestine supplied by the inferior mesenteric artery and consequently the disturbance less. The complete closure of the superior mesenteric artery, however, produces grave intestinal symptoms usually diagnosed as due to peritonitis. The abrupt onset, violent intestinal peristalsis with vomiting of blood and the tarry stools followed by paralysis of the intestine should at least arouse the thought of an hemorrhagic infarct.

### POST OPERATIVE PULMONARY COMPLICATION

The incidence of pulmonary embolism varies with the character of the operation and the operators. In a series of 5,710 operations done by ten different operators pulmonary embolism occurred from nineteen hundredths of one per cent to five and three-tenths per cent.

Deaver in	750 Cases	1 73%
Frank in	400 Cases	1 75%
Spencer Wells in	137 Cases	3 00%
Schauta in	131 Cases	5 3 %
Chevreux in	820 Collected cases	2 7 %
Martin in	97 Collected cases	1 2 %
Kustner in	100 Collected cases	3 0 %
Clark & Norris	213 Collected cases	0 4 %
Brown in	1,500 Collected cases,	
	Woman's Hos-	
	pital	0 4 %
Peter Bent Brigham in	1,562 Cases	0 19%
Total	5,710 Cases	0 19 %

Cutler and Hunt in a recent study of post operative lung complications give a summary of 18,000 laparotomies from eleven different hospitals with the incidence of pneumonia alone of near 4½% (4 48%). A total incidence of pulmonary emboli or post operative pneumonia in 23,700 operations of 9½% (9 51%). Whipple, in his study for 1915-16 of post operative pneumonia only in the Presbyterian Hospital reported 97 cases in 3,719 anaesthetics or 2 6%, while Burnham in 1914, reported from the same hospital 59 cases of pleurisy (0 45%) and 6 cases of empyema following 13 000 operations (0 4%), or nearly one-half of one per cent ( 49%), approximately 3% for the combined figures. Cutler and Hunt reported that at the Peter Bent Brigham Hospital of 1,562 patients operated upon 55 or 3½% (3 52%) developed a definite post operative pulmonary complication.

When one considers that at both these hospitals the operations are done by skilled operators the anaesthesia is administered by trained anaesthetists and every pre and post operative care is given to minimize the risks incident to the surgical procedure that can be thought of in a hospital with the highest standards one can not fail to be impressed with the frequency of lung complications following operations and ask the cause.

If one believes, as do Cutler and Hunt that their origin is to be found in pulmonary emboli, which is a conclusion that has been arrived at also in a recent review by Hampton and Wharton of post operative lung conditions in Johns Hopkins Hospital, one has abundant proof for this conclusion in a study of the pathologic lesions of the lungs. For it is in the lungs that one would expect to find most frequently thrombi or emboli. Welch says that

primary thrombus of the pulmonary arteries, particularly of the medium sized and smaller branches, is more frequent than is represented in text books, and Pitt states that thrombi are more frequent in the pulmonary arteries than in any other vein or artery in the body. (Clinically a thrombosis of the pulmonary artery produces symptoms similar to a pulmonary embolus.) The origin of the large emboli is in a peripheral venous thrombosis or diseased right heart, but pulmonary hemorrhagic infarcts are usually small and multiple and found in the lower lobe more commonly on the right side and come from a diseased right heart more frequently than from a peripheral thrombus.

### TIME OF OCCURRENCE

The time of the occurrence of fatal pulmonary embolism we know is frequently soon after operation. Hampton and Wharton reported that half of their cases of embolism developed within the first six days, one at the end of twenty-four hours and one fatal attack occurred three hours after operation. Gibson says 60% of the cases of embolism occur in the first week after operation and more deaths in the first and second twenty-four hours. Of three cases of fatal embolism at the Woman's Hospital following 617 hysterectomies for myomata uteri three occurred in forty-eight hours—six days—and eight days respectively after the operation. Kustner reports two cases two and three hours each after operation.

### PHYSICAL SIGNS AND DIFFERENTIAL DIAGNOSIS

The autopsy picture of the lungs following acute embolism is oedema and congestion. If minute emboli were showered into the lungs from the operative field during anaesthesia the congestion produced would give the physical signs we often attribute to the anaesthetic and designate bronchitis pleurisy or ether pneumonia. The clinical course, however, differs from that of inflammatory conditions of the lungs. The initial symptom is usually localized pain, accompanied with dyspnoea, and possibly a chill, soon followed by bloody expectoration which in the absence of tuberculosis is almost pathognomonic. Associated with the sputum is evidence of circumscribed consolidation and subcrepitant rales with moderate elevation of temperature and moderate leucocytosis. If the process is not an infective one the condition improves in three or four days, to be followed in a few days' time perhaps by the appearance of a thrombus in the lower extremities. If the process is infective an inflammatory condition results which may be recovered from or may terminate in gangrene of the lung or empyema. The differential diagnosis from pneumonia

when the emboli are bland is based upon the short duration of physical signs in the chest the character of the sputum which is never tenacious and prune juice in color, but copious, watery, and contains flecks or streaks of blood. The absence of evidence of consolidation, cyanosis, high sustained temperature, leucocytosis and general appearance of severe illness differentiate the condition from pneumonia. It is of considerable interest that these pulmonary symptoms have been described by Dr Lewis A. Conner, of the New York Hospital, as the "Preliminary Signs of Venous Thrombosis in a series of studies on typhoid fever." Dr Conner believes that there are three well marked groups, viz: "Group 1—Those in which friction rub or crepitant rales over a small area were the only signs. These signs often lasted only two or three days. Group 2—Cases in which the signs were those of a small circumscribed pneumonia. The area of consolidation disappeared within three or four days. These signs were almost always in the lower lobes. Group 3—Cases with signs of extensive plastic pleurisy or of plural effusion." As these preliminary signs and the clinical course are very similar to those seen in two cases which occurred almost simultaneously on the division of Dr George Gray Ward in the Woman's Hospital and in connection with the X-ray pictures of the cases it may be of interest to give the histories somewhat in detail.

Case 1—Mrs J. Case No 27627, Woman's Hospital, age 34 colored. Heart and lungs normal. red cells 4,500,000, hem 95 white cells 8,000 polymorphonucleus 60%. Operation March 22 1921 by Dr Ward supravaginal hysterectomy, double salpingo oophorectomy and prophylactic appendectomy. Duration of the operation one hour 5 minutes. Pathological report: Large fibromyomatous uteri, chronic salpingitis and peri salpingitis, peri oophoritis, appendix normal. First day after operation temperature 102 pulse 120 respiration 28. That night the patient complained of severe pain in the chest. Second day after operation, temperature 101.8 pulse 120, respiration 44. Pain in the chest had increased and there was now cough and bloody expectoration, dullness at the base of the right lung posteriorly and fine rales but no increase in respiratory sounds.

Third day after operation, temperature 101 pulse 112 respiration 40. The patient was seen in consultation by the internist at the hospital and as there was now slight dullness, increase in voice and fine rales in an area at the lowest portion of both lungs and friction rales at the right base anteriorly, the case was diagnosed as broncho pneumonia associated with pleurisy.

Fourth day after operation, temperature 100.6 pulse 100 respiration 38. Patient feeling much better.

Fifth day after operation, temperature 100.4 pulse 100, respiration 36. The patient was still coughing, had copious watery blood tinged sputum but the lungs were almost clear. The report from the laboratory was pneumococci in the sputum, epithelial cells numerous, but practically no leucocytes. The patient was now complaining of pain in the lower left quadrant of the abdomen, and as the thought of thrombosis was now in mind she was sent at once for an X-ray of the chest, which was negative for lobar pneumonia.

Seventh day after operation and fifth day after onset of lung symptoms the patient complained of chilly feeling and pain in the left leg which was found to be swollen from a thrombosis of the left femoral vein.

The rest of the convalescence was normal. The wound healed by primary union. The cough and bloody sputum ceased by the ninth day, but the temperature, pulse and respiration were not normal until the twenty-second day.

Case 2—Mrs H. Case No 27639, Woman's Hospital, age 26 colored. Heart and lungs normal. red cells 4,350,000, hem 98% white cells 6,000, polymorphonucleus 64%.

Operation March 22nd, 1921 by Dr Farrar Resection of right Fallopian tube for an untended tubal pregnancy. Duration of the operation 20 minutes.

During the operation the pulse was reported by the anesthetist to have become very rapid and poor in quality, and the respiration shallow. The operation was hastened. The disturbance was only temporary and she left the operating room in good condition. First day after operation temperature 99.8 pulse 112 respiration 24. The convalescence was negative until the seventh day after operation when the patient complained of nausea and vomited blood tinged fluid. The vomiting continued until the next day when the patient began to cough and expectorated bloody fluid which was negative for tubercle bacilli but contained pneumococci type IV. Temperature 98.4, pulse 126, respiration 28. The physical signs were friction rub and subcrepitant rales. The X-ray plates were negative for tuberculosis or pneumonia.

Twenty-seven days after operation the patient complained of pain in the lower right pelvis.

Thirty days after operation there was extreme tenderness over the right femoral vein and swelling of the right leg. As the patient is still convalescing it is impossible to tell the outcome. There was primary union of the abdominal wound.

Case 3—Mrs C, Case No 27365 Woman's Hospital, age 27 white. Heart and lungs negative. red cells 4,800,000, hem 100% white cells 13,200 polymorphonucleus 79%.



Operation by Dr Ward—Salpingectomy, right Appendectomy Simpson operation for retroversion Duration of the operation, one hour four minutes

Pathological report—Adenomyoma of the tube Acute appendicitis It was noted on arrival of the patient in the Recovery Room "that the condition was good but color poor, pulse 120, respiration 22" Rattling of mucus in the throat" One hour later the pulse was 160, respiration 38 and "difficulty in breathing Skin blue" Four hours later the patient was coughing and expectorating mucus and complaining of pain in the chest The cough and bloody expectoration increased in severity and amount

	Temp	Pulse	Resp
First day after operation	104 (rectal)	140	50
2d & 3d day after operation	102.8	130	38
Until 7th day after operation	102	102	36
		130	36

After the seventh day the temperature and pulse remained below 100, while the respiration continued between 30 and 24 until the sixteenth day There was primary union of the abdominal wound The physical findings Twenty-four hours after the operation there was moderate dullness over the whole of the right lower lobe Fine rales and friction rub Diagnosis pneumonia and pleurisy The leucocyte count was below 16,000, the polymorphonuclears 78% The sputum was clear with flecks of blood and moderate in amount The X-ray picture fourteen days after operation showed plural thickening, unresolved pneumonia and infiltration in the hilum

In the first two cases we have much the same clinical course and physical findings Both were clean cases, both had presumably large pelvic veins, due in one case to a very large myomatous uterus and in the other to a tubal pregnancy In the first case the lung symptoms began about thirty-two hours after the operation, and in the second case a week after unless we may consider that the disturbance of pulse and respiration during operation was caused by an embolus In both cases the emboli were evidently bland as no inflammatory process resulted in the lung and each case showed later the presence of a thrombus in a femoral vein The third case was one of acute appendicitis with pus in the lumen of the appendix There was no spilling of pus during the appendectomy, no symptoms later referable to the abdomen and there was primary union of the wound, but the embolus was evidently infective as an inflammatory process followed immediately This case did not show a thrombus or the veins of the lower extremity as did the other two, but is classed as an embolus case for the following reasons

- 1 The onset of symptoms immediately following the operation
- 2 The mild course of the lung symptoms
- 3 Bloody sputum
- 4 X-ray picture of the lung

#### ETIOLOGY

In seeking the etiology of surgical embolism and thrombosis we must look to an alteration in the circulation More deaths Gibson says occur from embolism in the first and second twenty-four hours—too rapid for any but an overwhelming infection which is not borne out by autopsy findings The post operative lung complications Cutler and Hunt showed were manifest in three-fourths of the cases (76.4 per cent) within forty-eight hours after the operation, again too soon for the incubation period of infection Virchow believed the cause of thrombosis and embolism lay in an enfeebled circulation and that inflammation of the wall if present was a merely secondary effect The greatest frequency of embolism and thrombosis is after operations in the lower abdomen It is after hysterectomy with large fibroids or after pregnancy where continued pressure on the veins of the lower extremities has kept these veins over distended that thrombosis and embolism most frequently occur and less frequently after pelvic operations on pus tubes or ovarian abscesses where bacteria would furnish abundant cause if it were the chief etiological factor in embolism The femoral veins are attached to bone and fascia just above the valves near Poupart's ligament which prevent the veins readily adjusting themselves to a diminished blood volume Counter currents or an eddying motion of the blood attributed by Aschoff and Von Recklinghausen to thrombosis formation may result, aided in the left femoral vein by the greater difficulty in the return flow due to the increased length and obliquity of the left common iliac vein and its passage under the left common iliac artery A distended sigmoid or rectum favors stasis in the blood stream The fall in blood pressure which is the usual result in a hysterectomy operation due to loss of blood and injury to ganglia cells causes a sudden diminution in the blood volume of the femoral vein while its fixed attachment prevents it from quickly adjusting itself to the smaller blood stream Thrombi are both red and white The red thrombi are formed from stagnating blood and resemble a clot in shed blood The white thrombi are formed from circulating blood and consist chiefly of altered blood platelets, polynuclear, leucocytes, fibrillated fibrin in large amounts with a varying number of red corpuscles It is considered that impairment to the nutrition cells of the vascular wall is necessary for the formation of white thrombi, and that this occurs very quickly when there is a diminution

in the volume of the blood stream. The large veins of the pelvis, the slowing down of the blood stream, the diminished volume with consequent loss of nutrition to the vessel walls combined with the character of an operation whose severity is often lost sight of in the usual smooth convalescence but which from the injury to ganglia cells produces the condition we term shock favors thrombosis formation.

While sepsis may be the source of emboli it would not seem that it plays as great a role as circulatory disturbances in pulmonary thrombosis and embolism as the temperature is usually only moderately elevated, the leucocytosis not marked and the condition usually soon recovered from.

A thrombus has been likened to a serpent in appearance. Its head is the white thrombus, its neck gray and the tail which is formed last, is red. But unlike the serpent it is the tail which carries the venom, for when the tail is sufficient in length to reach the middle of the blood stream its head is still held fast to the wall of the vessel but the soft red clot at the tip of the tail is easily broken off and swept away by any sudden increase in the rate of flow or by pressure on the vessel wall either of which may occur on the first sitting up or getting out of bed, etc.

Hampton and Wharton report that in their autopsy records 85 per cent of the fatal pulmonary embolism cases had their origin in an embolus from the pelvic veins and that it seems probable that traumatic and mechanical factors play a larger part in the formation of pelvic thrombosis than infection does.

The anemia which is often present due to menorrhagia or metrorrhagia may contribute to a lowered resistance and also to the "myoma heart" which in itself may be a cause of venous thrombosis as almost any heart lesion producing myocardial insufficiency may be associated with thrombosis.

#### REVIEW OF OPERATIONS IN THE WOMAN'S HOSPITAL

In accordance with this theory it has been of interest to review 130 cases operated upon for myomata uteri by Dr Ward and myself in the Woman's Hospital from March 1, 1918, to March 1, 1920.

In these two years all ward patients having large fibroids necessitating removal were kept in bed from five to seven days previous to operation and no embolism or thrombosis occurred in any case. In the private patients who were not kept in bed previous to the operation but usually operated upon the day after entrance to the hospital, a fatal embolus occurred once and venous thrombosis six times with exactly the same technique employed for both class of cases, except that the ward patients had been kept in bed previous to the operation.

In the past year blood pressure was maintained by glucose and gum acacia given intravenously throughout a series of approximately 250 operations. The series included hysterectomies for myomata uteri and in no case in the whole series did embolism or thrombosis occur. While in other cases done by the same two operators with out maintaining blood pressure or preliminary rest in bed embolism or thrombosis occurred four times.

While it is true the number of cases is too small to draw positive conclusions from it is believed that the tonic effect on the heart and blood vessels obtained by relieving the pressure from large tumors in the pelvis has been a factor in the prevention of embolism and the maintenance of blood pressure during operation has materially assisted this.

#### CONCLUSIONS

1 The most frequent cause of post-operative pulmonary complications following hysterectomy for myomata uteri is pulmonary embolism or thrombosis.

2 The source of pulmonary embolism or thrombosis is a thrombosis of the pelvic veins or the veins of the lower extremities, or a thrombosis of the right heart.

3 Thrombosis of the pelvic veins occur much more frequently than thrombosis of the lower extremities.

4 The development of a thrombosis or embolism may be during an operation or immediately following it. The most frequent time seems to be in the first forty eight hours.

5 The symptoms in the order of their most frequent occurrence are pain friction rub cough, bloody sputum and rales dullness and alteration of breath sounds.

6 These signs are premonitory of a thrombosis, but the evidence of thrombosis in the veins of the lower extremities or pelvic veins does not appear until later.

7 The physical findings at the onset are similar to lobar pneumonia or pleurisy but the clinical picture soon separates the cases. In differential diagnosis the X-ray may be of value.

8 Thrombosis and embolism occur more frequently after hysterectomy for large myomata and less frequently after operation on pus tubes and ovarian abscesses.

9 The causes are (A) an enfeebled circulation due to (a) dilated venous trunks especially of the pelvis and lower extremities, (b) venous stasis, (c) lowered blood volume due to hemorrhage or shock (d) myocardial insufficiency, (B) infection.

10 The treatment should be prophylactic and directed to improving the circulation of the blood by strengthening the heart muscle and walls of the blood vessels and increasing the

hemoglobin of the blood The importance of rest in bed as a preliminary to operation to relieve the pressure of large myomata on the veins of the pelvis and lower extremities, the use of blood transfusion before operation in cases of marked anæmia and the maintenance of the blood volume during operation by gum glucose given intravenously should be emphasized

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### Discussion

DR WALTER LESTER CARR New York City Percentages varying from three to ten are given as the proportion of these complications in abdominal work. No doubt many small foci escape detection and are not noted in histories but the larger areas localized in the lungs cause physical signs that attract immediate attention. In this latter group there may be symptoms that are distinctly pneumonic and therefore it may be difficult to differentiate them from the symptoms observed in patients who have pneumonic infection from pre- or post-operative causes—such for example as the epidemics of influenza of the past two years. The blood counts are not always distinctive for in the influenzal pneumonias the white count may be low and not equal or exceed the post-operative count of a normal patient. In broncho pneumonia, however, we have in addition to localized dullness large and small rales covering more of the chest than in embolic cases and the temperature is more protracted. The sputum in pneumonia is sure to show pneumococci or streptococci while in embolism the sputum is bloody but negative for these organisms, although later they may be present.

At the woman's hospital we have not yet carried out observations in radiographs of the lungs sufficiently to report their value in differential diagnosis. Months will pass without being called to see patients with emboli or thrombi after abdominal operations while at other times there will be a number of patients with these complications and again the lung inflammation in some patients seems to be due to influenzal or other infection and not caused by trauma of tissue.

## THE SURGICAL ASPECTS OF INJURIES OF THE BRACHIAL PLEXUS\*

By ALFRED W ADSON M D

MAYO CLINIC ROCHESTER MINNESOTA

IN view of the fact that injuries of the brachial plexus are not uncommon and are difficult to treat I decided to make a study of 101 cases recorded in the Mayo Clinic from January, 1910 to March, 1921.

Of these 101 cases forty-five were the result of obstetric birth palsy. Fourteen of the patients were under two years of age. Ten were between two and five, and twenty one were between five and thirty-six, most of the latter were about the adolescent age. Fifty-six cases were the result of injuries other than obstetric, such as direct blows associated with fractures, dislocations forcible separation of the head and shoulders produced by falls, belt injuries, severe torsion of the brachial plexus, and gunshot and stab wounds. The paralysis varied from a slight disturbance of one root to complete paralysis of the brachial plexus.

### REVIEW OF LITERATURE

A review of the literature revealed two distinct views concerning the etiology of brachial plexus paralysis first that the injury is primarily an injury of the brachial plexus and second that the injury is primarily an injury to the shoulder joint and the brachial paralysis is a subsequent result. Duchenne in 1872, was the first to call attention to obstetric birth palsy. He described paralysis in the newborn, with the involvement of the fifth and sixth cervical roots. Erb, in 1874 described paralysis of the brachial plexus, traumatic in origin, which he stated was identical with the Duchenne obstetric birth palsy, a lesion of the fifth and sixth cervical roots. These lesions have been found to coincide with lesions described by Taylor and Cusumajor in 1913, and by Thomas, in 1914, except that in Thomas' cases the paralysis was primarily complete, the arm hanging flaccid and then improving with a residual involvement of the fifth and sixth cervical roots. Taylor and Thomas are the two principal exponents of these views, having presented numerous articles on the subject. In 1913 Taylor and Cusumajor reported six cases in which the paralysis followed separation of the upper roots. The laceration occurred from the fifth cervical downward. The first structure to tear was the cervical fascia in front of the cervical root then the nerve sheaths then the nerve itself and then the blood vessels which produced hematomas followed by inflammatory reaction and scar tissue. Five patients were operated on with not very encouraging results. Besides removal of

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4 1921

the scar tissue, end-to-end anastomosis, or lateral anastomosis and nerve bridging was advised. The two latter procedures have not been associated with very satisfactory results in the repair of peripheral nerves.

Taylor, in 1913, reported a series of cases and stated that intraspinal injuries and injuries to the roots close to the intervertebral foramen are difficult to treat, and that very little is accomplished surgically. He believes that the subluxation which occurs is the result of an infantile condition of the clavicle, scapula and humerus. He believes also that a marked traumatic neuritis occurs as the result of the injury, which is aggravated by massage and passive motion and, even though the operative results are not extremely gratifying, surgical treatment offers the best hope. In 1920, Taylor stated that patients with obstetric birth palsy seldom recover perfectly, as the pediatrician and the neurologist maintain, and that, while surgical treatment is advantageous and offers some improvement, too much should not be expected of it except in the occasional case. If spontaneous recovery is to take place, he believes that it will occur within three months. He reported having operated on seventy patients, with only three deaths, and of having seen in consultation 130 other brachial injuries of the nonoperative type. Of this entire group of 200 patients, only ten were under two months of age.

October 3, 1911, Thomas presented a paper on the "laceration of the axillary portion of the capsule of the shoulder joint as a factor in the etiology of traumatic combined paralysis of the upper extremity." He attributed the cause of obstetric birth palsy to the influence of scar tissue following effusion of blood and synovial fluid from a lacerated capsule of the shoulder joint with subluxation. In 1916, he stated that the general surgeon usually ascribed the lesion to an injury of the brachial plexus, ignoring the ankylosis and pain at the shoulder. He refers to Duchenne's article in 1861 in which four cases were reported of posterior subluxation of the shoulder and internal rotation, with paralysis. In a third edition of Duchenne's article four additional subluxations were reported, with the statement that possibly others had been overlooked. Thomas states that if palsy is the result of an injury in the region of the shoulder, and is associated with ankylosis of the shoulder joint, it disappears with the restoration of normal motion to the shoulder joint thus indicating that the injury to the plexus must be due to an injury to the joint. He also states that if there is no displacement in the shoulder joint a perfect recovery will occur with the aid of exercise. In chronic cases, posterior subluxation with internal rotation is usually found, for which he suggests reduction of the shoulder joint by

manipulation, if possible, otherwise by operative treatment with abduction of the arm. In 1917, he again emphasized that brachial paralysis, in most instances, is secondary to joint injury, and that it disappears with recovery of the joint. He also stated that nerve lesions with stiff and painful joints recover without surgery, and that repair of the flail joint and the reduction of the dislocation places the lesion in the former group in which recovery takes place. In 1920, he reported eighteen cases of injury of the shoulder, in twelve of which operation was performed. In nine patients the paralysis disappeared and two improved moderately, one of the patients died. In 1914, he reported forty-four birth palsies, referred to as "pseudo-birth palsies," adhering to his original contentions in the following pathognomonic signs of subluxation: "On the normal side the upper end of the humerus projects a variable distance to the anterior edge of the acromion. On the side of subluxation it cannot be felt from in front and by careful palpation with the finger the anterior edge of the acromion can be located a considerable distance below its normal level. On the normal side there is a hollow on the posterior border of the acromion—on the affected side a prominence."

It is of interest to note that Schultz, in 1908, reported fifty-four uncomplicated dislocations of the shoulder in which brachial paralysis developed in varying degrees in 75 per cent of the patients. In none of these instances was there a brachial nerve complication at the time of injury, the lesions all developed subsequently. This fact is not in accord with the development of symptoms in classic obstetric birth palsy or in brachial plexus injuries, when the paralysis is frequently complete for several weeks and then improves and is limited to certain roots.

Fieux, in experimental work, found that he was unable to tear the brachial roots by forcible separation of the head and shoulder in the cadaver. Delbert and Cauchoux reviewed thirty-five cases of injury to the brachial plexus, from surgical and necropsy findings, and in none was a distinct rupture found. In every instance the blood had extravasated and inflammatory and cicatricial tissues were found. Taylor made twenty dissections of ten infants, from three to ten days after injury, and found that tension was the only contributory factor in the production of the lesion. Thomas applied forceps to the cadavers of six infants, using great force while holding the body firmly, and was unable to rupture the brachial plexus by traction on the head with the forceps. All of the brachial plexuses were dissected after the tension had been applied.

It is evident from the foregoing data that injuries in obstetric birth palsy involve the fifth

and sixth roots more frequently than the other roots, that the injuries are very slight in some cases and that rarely, if ever, is the root completely lacerated. Examination of the plexus soon after birth reveals little that is abnormal but if the paralysis is permitted to continue for several months a mass of scar tissue is often found close to the roots sometimes with involvement of the roots. The scar tissue thus remote from the shoulder and axilla indicates its development as a result of injury to the cervical fascia, epineurium, and perineurium, and to the rupturing of the blood vessels and fasciculi. While subluxations occur, particularly in breech presentations and in cases in which extreme abduction of the arm has occurred many dislocations in chronic birth palsy no doubt are the subsequent result of the infantile development of the shoulder joints.

Corresponding lesions due to blows and forcible separation of the head and neck are frequently found but if in addition the pull is upward the lesion may be reversed with an injury of the first thoracic and of the seventh and eighth cervical roots. Laceration of the roots rarely occurs in birth palsies, it does occur however, in some of the violent injuries to the brachial plexus. The same is true of avulsion, which rarely if ever occurs in birth palsies but is not uncommon in the major injuries.

#### DISCUSSION OF CASES

Forty-five patients suffering from birth palsy have been examined at the Mayo Clinic. The majority of these presented injuries of the fifth and sixth cervical nerves; however, other trunks were frequently involved. Duchenne and Erb have been given credit for the classic description of birth palsy and similar injuries in adults but my opinion coincides with that of Thomas who states that early birth palsy is not a simple involvement of the fifth and sixth cervical nerves but is one in which the whole arm hangs flaccid. It has been found that recovery occurs in some of the nerve trunks but others remain impaired.

The forty-five patients were divided into three groups. In Group 1 were fourteen patients under two years of age the average age was eleven months. In Group 2 were ten patients between the ages of two and five, the average age was four years. In Group 3 were the twenty-one patients between the ages of five and thirty-six the average age was fifteen years. This classification was made in order to ascertain the degree of improvement of patients not operated on in the different periods. In one instance only was surgical treatment instituted.

The etiologic factors were practically the same throughout. In twenty-seven cases the deliveries were instrumental, there were breech presenta-

tions, five were normal deliveries, and in eight cases the type of delivery was not reported. In four of the forceps deliveries the high traction was applied and numerous notes were made concerning the prolonged and difficult labors. Since in 73 per cent of the reported deliveries forcep application was necessary, I am convinced that the injury to the brachial plexus must have occurred before the delivery of the head and that forcible traction and separation of the head and shoulders must have taken place as the shoulders were moulded in the true pelvis. It is true that traction on the arm and shoulder in breech presentation is a productive factor in birth palsy, and no doubt the injury is occasionally sustained after the birth of the head.

In fourteen cases in Group 1 there was only one dislocation, in the ten cases in Group 2 there were four shoulder dislocations, one shoulder and radius dislocation and one epiphyseal separation, in the twenty-one cases in Group 3 there were seven shoulder dislocations, four shoulder and radius dislocations, and one marked ankylosis of the shoulder, probably of traumatic origin.

Thomas believes that injuries to the capsule of the shoulder with a resultant axillary inflammation are the principal factors in the production of brachial palsy. Taylor holds that dislocations of the shoulder are a subsequent result of active muscles over paralyzed muscles the failure of development of the head of the humerus, and lack of sufficient exercise.

A review of the forty-five cases shows that only one of the fourteen patients under two years of age had a shoulder dislocation, five of the ten between the ages of two and five had dislocations and twelve of the twenty-one over five years of age. The increase of frequency of dislocation of the shoulder with advancing age would indicate development of the dislocation in a certain group of patients after birth rather than during birth. I believe that there are more true neurologic lesions varying from laceration of the cervical fascia around the nerve trunks to stretching of the fasciculi and partial and complete laceration of the nerve fibers than there are brachial plexus injuries because of effusion and axillary inflammation which is the result of a laceration of the capsule and dislocation. I believe however that there is a certain group of palsies due to lacerations of the capsule of the shoulder with effusion and axillary inflammation that is improved by surgical reduction of the dislocation as suggested by Thomas, but that this group consists of a milder type of palsy, since the injury in severe brachial palsy is situated close to the intervertebral canal. This fact has been borne out by surgical exploration and has been verified by Taylor in his necropsy findings. In my ex-

perimental work artificially produced injuries were situated within 3 cm of the intervertebral canal, unless there was equal distribution of pull over all the roots of the brachial plexus in this case the laceration occurred in the axilla and produced an elongated tear, the fibers breaking at various levels over a distance of 12 cm. When the laceration became complete, the nerve cords were a mass of shreds. I doubt if this type of lesion ever occurs in birth palsy, and rarely, if ever, in injuries of adults. It is proof, however, that lacerations of the brachial plexus are not sharply defined, and that they do not lend themselves readily to neurologic surgery.

Of the forty-five patients with birth palsy ten had a single involvement of the upper nerve trunk, one had a middle involvement, one a lower involvement, nineteen had upper and middle involvements, six had middle and lower involvements, and eight had complete paralysis. In twenty-three instances the injury was on the right side, in twenty-one on the left, and in one it was bilateral. In the patient with the bilateral lesion recovery occurred on the left side within a few months and on the right side the condition became chronic.

The average improvement in the patients in Group 1 was 37 per cent return of function of the nerve roots, in Group 2, 56 per cent return of function and in Group 3, 65 per cent return of function. While the greatest improvement in these cases occurs before the second year, this series of forty-five cases shows that improvement continues for a number of years. Some of our patients improved up to twelve and sixteen years of age. This is contrary to the observations of Taylor and Thomas, who believe that complete return of function will be obtained within three months.

Fifty-six cases of traumatic brachial paralysis were studied, according to a classification as follows:

Brachial plexus injuries the result of trauma to the shoulder and neck without fracture or dislocation, twenty-three.

Brachial plexus injuries the result of trauma to the shoulder and neck, associated with fracture of the clavicle or humerus, seven.

Brachial plexus injuries associated with dislocation of the clavicle or humerus, five.

Brachial plexus injuries the result of belt injuries, thirteen.

Brachial plexus injuries the result of gunshot wounds, seven.

Brachial plexus injuries the result of stab wounds, one.

In two of the patients the upper trunk was involved, in three the middle trunk, in one the

lower trunk, in nine the upper and middle trunks, in three the middle and lower trunks, and in thirty-eight the entire plexus, either partial or complete. The injury was on the right side in thirty-three, and on the left in twenty-three.

The average duration of symptoms at the time of examination was six months. Fourteen of the group of twenty-three patients were treated medically, nine were operated on. Two of the seven in the second group were treated medically, five were operated on. All of the five in the third group were treated medically. Seven of the thirteen in the fourth group were treated medically, six were operated on. Four of the seven in the fifth group were treated medically, three were operated on. The one patient with a stab wound was operated on.

The types of the twenty-five operations were as follows: Six nerve sutures, one Seever operation, two reductions of the shoulder, one reduction of the radius, one neurolysis, and sixteen explorations of the brachial plexus when nerve anastomosis was impossible because of laceration of the root so close to the intervertebral canal that sufficient scar tissue could not be removed to expose normal fibers, or because of evulsion, or because the extensive scar tissue and associated interstitial neuritis made the procedure inadvisable. Extensive resection of the nerve would have been necessary before making an anastomosis.

Seven of the twenty-three patients whose injuries were the result of trauma of the shoulder without fracture or dislocation were operated on for complete involvement of all trunks, five were explored with resultant failures. In two the nerves were sutured, with resultant failures, one with a partial involvement and an internal rotation of the arm had a Seever operation, with approximately 50 per cent improvement. In this group there was one upper trunk involvement, and one upper and middle trunk involvement, both were explored, the scar tissue was removed, and approximately 25 per cent return of function occurred.

In the group of seven patients whose injuries were the result of trauma and fracture three were explored with slight improvement, approximately 25 per cent return of function. On one patient with middle and upper trunk involvement, a neurolysis was performed with moderate improvement, approximately 40 per cent return of function. One with middle and lower trunk involvement was explored, with complete failure.

Of the thirteen patients with belt injuries, five were explored, in three all the roots were involved, in one the upper and middle roots, and in one the middle and lower roots, all with resultant failures. The patient with the lower and middle root involvement also had a dislocated radius, this was reduced and, by the

and of massage and exercise, a slight return of function was obtained, approximately 25 per cent.

Three of the seven patients with gunshot wound injuries were operated on. In one instance all the trunks had been partially or totally severed and a marked interstitial neuritis had resulted. The anastomosis made failed. One upper trunk was sutured with 75 per cent return of function. In one case of middle and lower root involvement nerve suture resulted in 50 per cent return of function. This patient had also an arteriovenous aneurysm which was operated on.

The patient with the stab wound had motor impairment in all cords. Exploration and nerve suture resulted in approximately 50 per cent return of function. Thus sixteen patients underwent explorations, of which eleven were failures and five patients were slightly improved, possibly 25 per cent. Neurolysis in one patient resulted in approximately 40 per cent recovery. Nerve suture in six patients resulted in three failures, improvement occurred in three whose injuries were the result of gunshot and stab wounds. This emphasizes that the operability of these lesions is similar to that of lesions of the peripheral nerves elsewhere in the body.

Fourteen of the twenty five operations were failures, eleven patients were improved to approximately 40 per cent function. However, the improvement should not be ascribed entirely to the surgical treatment since some return of function would have occurred without such interference.

In fourteen patients with injuries the result of trauma to the shoulder and neck without fracture or dislocation who were not operated on there was an average of 45 per cent return of function. Seven of the nine operations were failures, two patients had approximately 25 per cent return of function. In the group of seven patients, the two not operated on had approximately 25 per cent return of function, one of the five operations was a failure and four patients had approximately 29 per cent return of function. None of the group of five patients was operated on, two had approximately 75 per cent return of function, three had no return of function. In the group of thirteen patients seven were not operated on, one did not have return of function and six had approximately 37 per cent return. Five of the six operated on did not obtain function, one had approximately 25 per cent return. Four of the group of seven patients were not operated on, two had approximately 75 per cent improvement the results in two were not reported. One of the three patients operated on failed to obtain function, and two had approximately 60 per cent return. The patient with the stab wound was

operated on and had approximately 50 per cent return of function.

Thirty-two patients were not operated on, four failed to obtain function no information was obtained from two, and twenty-six had approximately 45 per cent return of function. Twenty-four patients were operated on, fourteen did not obtain return of function, ten had approximately 34 per cent return. Failure resulted in 12 per cent of the patients not operated on and in 58 per cent of those operated on. The data obtained from these cases show that there is slow improvement in severe cases. In milder cases the patients improve by medical treatment but surgery offers very little. Occasionally surgical treatment is indicated, but a favorable prognosis should be entertained only reluctantly in cases of gunshot and stab wounds when sufficient time has been allowed for spontaneous recovery.

#### EXPERIMENTAL DATA

In conclusion I wish to compare the etiologic and pathologic conditions involved in the production of injuries to the brachial plexus with the results of experimental work which will be published shortly.

The experiments were made on cadavers as soon after death as possible. In no instance was complete laceration or avulsion of the ganglion possible by forcible separation of the neck and shoulder or by extreme abduction or traction on the shoulder without bending of the head, or by torsion of the arm either forward or backward unless the force employed was so great as to produce an injury to the soft parts. In all five positions the various roots were put on tension, the anterior cervical fascia was lacerated and in some cases associated with laceration of the perineurium and thinning of the nerve root. A dissection was made, and the entire brachial plexus, including the roots the trunks the cords and the nerves was exposed, with exaggeration of the various positions.

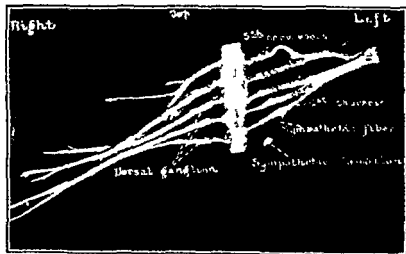


Fig 1



Figure 1 (right) Traction on the nerves distal to the cord with equal distribution of tension over all the roots, simulating an injury when the hand had been caught in the machine and attempts were made to free it. The result in every instance was an elongated tear of the axillary nerves extending over a distance of about 12 cm.

Figure 1 (left) Traction upward on the brachial plexus, simulating an injury when a grasp is made while falling, producing marked abduction besides a sudden jerk on the brachial plexus. The result was marked tension on the first thoracic and eighth cervical, with partial avulsion of the root and partial laceration of the sympathetic fibers, accounting for the sympathetic phenomena, or Horner's syndrome.

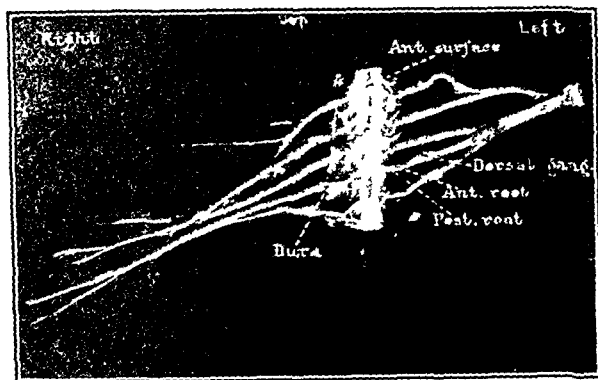


FIG 2

Figure 2 Same as Figure 1, except that the dura is reflected, presenting the anterior surface of the cord and illustrating in detail the partial avulsion of the nerve roots.

Figure 3 (right) Traction on the brachial plexus downward with forcible separation of the head in the opposite direction. The result was partial avulsion of the ganglion with laceration of the trunk distal to the ganglion.

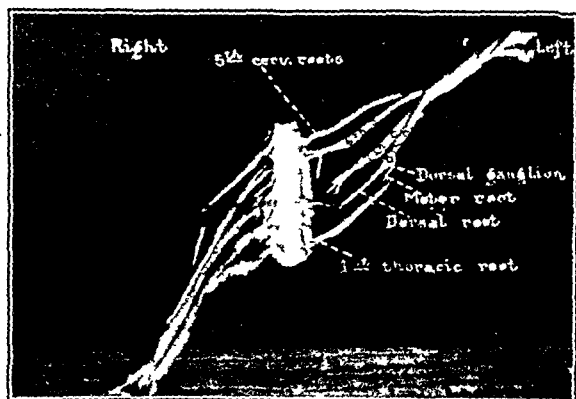


FIG 3

and avulsion of the sixth and seventh cervicals. Practically no injury was done to the eighth cervical or to the first thoracic.

Figure 3 (left) The result of injury due to backward rotation and traction, producing a partial avulsion of the root and ganglion with laceration of the trunk distal to the ganglion and proximal to the cord of the first thoracic root, avulsion of the root and ganglion of the eighth cervical, avulsion of the ganglion and laceration of the root proximal to the ganglion in the seventh cervical with avulsion of the ganglion and partial laceration of the root of the sixth cervical, and very little tension to the fifth cervical root.

The conclusions to be deduced from the experimental work are that while production of a complete laceration or avulsion is difficult, it is possible, and most of the injuries when applied to either end of the brachial plexus result in laceration of the trunks or avulsion of the ganglion. Owing to the proximity of such injuries to the intervertebral canal, repair is difficult. Many of the brachial plexus paralyses are no doubt the result of lacerations of the cervical fascia, epineurium, perineurium, fasciculi, and blood vessels, rather than to a complete laceration or avulsion. A complete laceration of all of the axillary nerves rarely takes place, unless the arm is pulled off.

### CONCLUSIONS

Injuries of the brachial plexus vary in severity from a slight disturbance to complete paralysis of one or more roots, the result of effusion of blood and synovial fluid, shoulder dislocation, fractures gunshot and stab wounds, stretching of nerves, laceration, and evulsion of the roots.

Treatment depends on the cause and degree of the injury. No one method, either medical, neurologic, or orthopedic should be used as a panacea for all brachial plexus injuries.

Since many of the injuries are slight and a fair degree of recovery takes place following massage and exercise, surgical treatment should not be too hastily instituted.

Since experimental results show that lacerations of the brachial plexus are elongated tears, in most instances situated within 3 cm of the intervertebral canal, provided the ganglion has not been evulsed, it is evident that surgery will offer little in the way of cure.

Gunshot and stab wounds of the brachial plexus should be treated like peripheral nerve wounds in other parts of the body. Accompanying dislocations or fractures should not be neglected.

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## IS SCIATICA A SYMPTOM OR A CLINICAL ENTITY? WITH REMARKS ON THE OBSERVATION AND TREATMENT OF THREE HUNDRED CASES\*

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WHILE I have had no good reason to change my views as expressed in a paper on "Sciatica and its Treatment" published in the *New York Medical Record* September 9 1905 (nearly sixteen years ago) I have for a long time felt convinced that the revival of a discussion upon this subject would prove of value. After a more extensive experience with these cases the conclusion has been forced upon me that a more definite understanding of sciatica is essential. Not only is a clinical reclassification of the disease necessary but also a clearer conception as to its etiological diagnosis, and a discontinuance of the misapplication of the name to symptomatic sciatic pain.

In order to avoid misunderstanding or confusion the term "Sciatica" should be restricted to those cases in which there is pain in the course of the sciatic nerve and its branches in the absence of evidence of disease in the pelvic cavity.

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 13 1921.

vertebral or pelvic articulations, hip-joint, spinal cord, etc. In other words, the diagnosis should be made by the exclusion of all focal pathological processes outside of the nerve trunk or its roots which are known to produce symptomatic sciatic pain. It has been, in a large measure indiscriminately applied to all conditions in which sciatic pain is an obtrusive symptom, although in many instances it is obviously a misnomer. It is also inconsistently used even by orthopedists, who have claimed that sciatica (meaning sciatic pain) is nearly always if not invariably caused by joint disease. This matter will be referred to later.

To quote from my original paper "In view of the multifarious conditions that may occasion sciatic pain, the accurate determination of the cause is often beset with difficulties. The risk of accepting the patient's own diagnosis, or of basing one's conclusions upon the patient's description of the pain, must be quite evident. Yet, this is done only too frequently and further examination is commonly neglected. While the location of the pain is usually established by the patient's statement even this must be carefully analyzed." It should always be borne in mind, that the most important feature relating to sciatic pain is the etiological diagnosis.

As a basis for further clinical study, sciatica may be divided into the following four types: *Perineuritis radiculitis*, neuritis and neuralgia. *Sciatic Perineuritis*. The characteristic physical signs are tenderness and pain on deep pressure at the sciatic notch and over the nerve trunk as it courses through the thigh, with or without radiation of the pain to the leg or foot; pain in the popliteal space and over the posterior thigh group in attempts at passive hyperextension of the extremity with the thigh at a right angle with the pelvis (Lasegue's sign), pain over the anterior portion of the thigh when the leg is flexed upon the thigh with the patient in the prone position, increased knee-jerk and diminution or loss of the Achilles reflex on the affected side. Of course, variations and fluctuations in the degree and character of these symptoms are to be expected.

*Sciatic Radiculitis*. This type was originally described by Dejerine (*Seméiologie des affections du système nerveux* 1914, p 626) who claimed that the diagnosis depends upon a careful study of the cutaneous sensibility. It often begins with the same symptoms as ordinary sciatica, but the pains are more severe than in cases in which only the nerve trunk is involved, and are increased by coughing, sneezing, or in efforts at defecation. The fourth and fifth lumbar and the first sacral roots are more frequently affected than the other lumbosacral roots.

Should the distribution of the pain, or the hypæsthesia or hyperæsthesia correspond with a root area then a lesion of the nerve trunk is improbable.

able The presence of segmental sensory disturbance of the fifth lumbar and the third or fourth sacral segments is characteristic of a root neuralgia Several French writers believe that one third of the cases of sciatica are radiculitis

I have been unable to satisfactorily demonstrate this type of cutaneous sensory disturbance among the large number of cases of sciatica that have come under my observation In mild cases they may be easily overlooked Strauss (*J A M A*, Dec 15, 1917) has reported the same experience based upon an analysis of ninety-one cases This may be explained upon the assumption that these phenomena are more likely to occur during the acute stage It has seemed to me, nevertheless, that spontaneous sciatic pain principally affecting the lumbo-sacral and gluteal regions in the absence of any demonstrable nodular formation in the muscles or tenderness and pain on pressure over the notch and nerve trunk, with absence of the Achilles reflex, would point strongly in favor of a radiculitis affecting the lumbo-sacral roots, with or without segmental sensory disturbance

c *Sciatic Neuritis* This is rarely of spontaneous origin In addition to sciatic pain, it is usually accompanied by unmistakable motor, sensory and trophic phenomena in varying degree, such as paresis or paralysis, atrophy, loss of the Achilles reflex, anesthesia, vasomotor disturbances, and diminution or loss of faradic muscle irritability

d *Sciatic Neuralgia* All of the objective signs of perineuritis, radiculitis or neuritis are absent It is usually due to constitutional causes, such as diabetes mellitus, gout, or so-called rheumatic diathesis It may also be a sequel of any of the acute infectious diseases, or the result of some focal infection In my experience sciatic neuralgia is unusual, while sciatic perineuritis is comparatively frequent

Pain beginning suddenly, or developing gradually in the lumbar region and rapidly extending along the course of the sciatic nerve and its branches (without a history of traumatism) may be safely characterized as acute sciatica The pain and associated symptoms so well known to you all, may subside within a few days, or may become persistent and last for several months or longer In acute cases, the diagnosis of sciatica is comparatively simple In chronic cases, however, it is a more difficult problem, and has led to a discussion as to the existence or non-existence of sciatica as a clinical entity

It is beyond the scope of this paper to dwell at length upon the general etiology and symptomatology of sciatica This will be found more or less accurately recorded in all modern text-books

Goldthwaite of Boston (*Boston Med & Surg Jour*, March 16, 1911), long ago called attention

to the fact, that affections of the lumbosacral articulation and the sacroiliac joint are the explanation of many cases of so-called lumbago and sciatica This has often been verified by neurologists Within recent years, however, several orthopedists have endeavored to prove to their own satisfaction at least, that sciatica is either always, or in the majority or instances, due to joint involvement, either of the hip, sacroiliac or lumbar articulations It has also been dogmatically asserted that it is invariably due to hip-joint disease, and more recently the diagnosis of sciatica as a clinical entity has been ridiculed

In a small book on sciatica published in 1913, Dr William Bruce of Scotland endeavored to prove his contention that the correct pathology of sciatica is essentially "trouble in the hip-joint" His deductions are based upon the examination and observation of several hundred cases in which sciatic pain was complained of, and in which unmistakable indications of hip-joint disease were evident It is difficult or impossible to reconcile this statement with the teaching of all experienced orthopedists, that in disease of the hip-joint (particularly tuberculous coxitis) the pain, as a rule, is at the inner side of the knee-joint or in the anterior portion of the thigh, namely, in the distribution of the obturator and anterior crural nerves, and that it only very rarely occurs in the sciatic nerve As sciatic pain is more likely to occur in cases of chronic osteoarthritis of the hip, this has at times led to errors in diagnosis In conclusion it may be safely said, that sciatic pain is rarely a symptom of uncomplicated hip-joint disease

It is also of interest to mention, that sciatica in its relation to arthritis of the hip, is somewhat analogous to brachial neuralgia or neuritis involving various branches of the brachial plexus, inasmuch as arthritis of the shoulder or a subdeltoid bursitis is often mistaken for brachial neuritis

In June, 1916, at a meeting of the Section on Orthopedic Surgery of the A M A, (*J A M A*, Feb 10, 1917, p 425) Dr Mark H Rogers of Boston read a paper entitled "Analysis of Fifty Cases of Sciatica," and stated, "of this series of fifty cases of so-called sciatica, forty-nine showed definite evidence of a lesion of one of the joints of the lower spine, which include the lumbar articulations, the lumbo-sacral joint, and the sacro-iliac joints One case out of fifty showed no evidence of a spinal lesion, but presented the characteristic evidence of carcinoma of the prostate" He therefore concluded that "there is no clinical entity which is commonly called idiopathic sciatica, and that the most common cause of sciatic pain is a definite joint lesion" Thirteen members took part in the discussion, three of whom practically agreed with

the radical views of the reader of the paper, nine were less radical or conservative while Dr John F. Radlson of Chicago stated "I have had the pleasure of having to be a month in bed for this kind of pain at least ten times. I have not had Pott's disease or osteoarthritis of the lumbar spine, or a slipped sacroiliac joint so the pain was not due to any of these."

In view of the statement of Bruce, it is a very significant fact that the hip-joint was not referred to by any of the speakers. Granting the presence of joint disease in the forty nine patients above mentioned, and also in those reported by Bruce in all probability in erroneous diagnosis of sciatica had previously been made either by the patient or his physician or by both, or that no previous diagnosis had been made at all.

To an unprejudiced observer these misleading articles are manifestly in unfair and illogical presentation of the subject. It must be quite evident to the discerning neurologist, that the writers being unfamiliar clinically with the type of cases described in this paper, have formulated their conclusions from a circumscribed orthopedic viewpoint. I am willing to admit that sciatic pain is often the result of joint lesions. It must also be conceded that sciatic pain may also be caused by pelvic diseases and other conditions soon to be enumerated. But the claim that all cases of sciatica are due to joint lesions, is at variance with the facts well established by all experienced clinicians.

In this connection, it is worthy of note, that several years before the publication of his paper on "Brachial Neuritis and Sciatica" (*J A M A*, Dec 29, 1917) Dr H. T. Patrick of Chicago had called attention to the following simple and practical method of determining the presence or absence of arthritis of the hip in alleged cases of sciatica.

"While the patient is in the supine position on a level bed or couch, the leg of the affected extremity is flexed upon the thigh with the external malleolus resting upon the opposite knee, and maintained in this position. Should the examiner not succeed in depressing the knee of the affected side to the level of the opposite extended limb owing to a greater or lesser degree of resistance and pain at the hip-joint, this would indicate the presence of arthritis at the hip." He believes that this sign is never present in uncomplicated sciatica. On the other hand, when these manipulations can be successfully performed the hip joint is free.

During the last seven years I have adopted this plan as a preliminary routine method in the examination of all cases of supposed sciatica and have found it invaluable. I have quite frequently observed however, that in patients with sciatica, there is often some non-painful resistance in the muscles of the hip during this manipula-

tion, and that in the first attempt I have not succeeded in placing the knee completely on a level with the opposite limb. After it has been repeated several times (within a few minutes) the spasm relaxes and success is attained.

In some cases this symptom may persist for several weeks. I have been accustomed to interpret it as a defense reaction, the origin of which is at times difficult to explain.

During the last ten years, I have examined or treated over three hundred patients in whom sciatic pain was the predominant symptom. In a small percentage, the pain proved to be due to early tabes, spinal cord tumor, syphilis of the lumbosacral roots, periostitis or osteomyelitis of the femur, tuberculous vertebral disease metastatic carcinoma of the spine, sarcoma of the sacrum, spondylitis, osteoarthritis of the hip, flat-foot hemorrhoids, intrapelvic tumor, fecal impaction and early pregnancy. In one case, the pain was caused by pressure of an ill-fitting steel brace in a long healed Pott's disease and another had a large neurofibroma involving the nerve trunk and extending into the sciatic notch. Several were caused by direct traumatism. A large number were either lumbosacral neuromyositis or sacro-iliac joint affections.

At least seventy-five per cent of these cases could be safely classified as sciatica.\*

Sciatica is not such a frequent disease as was formerly supposed. This may be explained by the fact that during the last decade, greater attention has been directed to the development of diagnostic skill, and as more patients have been utilized for clinical instruction the number of alleged cases has materially decreased. As a result of these factors, the diagnosis has become more definite and accurate and cases that were formerly characterized as sciatica are now assigned to the category of other affections in which sciatic pain is one of the principal symptoms. It is beyond question, however that there is a definite group of cases which should be classified as sciatica, in which there is no evidence of joint disease. It is true that in some, the etiology is more or less obscure or cannot be discovered and yet they often respond promptly to treatment, without special orthopedic or surgical measures.

The pathology of sciatica is still unsettled and the opinions expressed are far from conclusive. The presence of pathological changes in the nerve has not been satisfactorily demonstrated, and there is some difference of opinion as to whether the lesions involve the nerve trunk or the lumbosacral roots, either within the vertebral canal or in the foramina. Few autopsies are on record, but the evidence points to the presence of a perineuritis. Superficial inspection of the

\*Statistical figures are not available owing to misplacement or loss of records during my change of residence.

sciatic nerve at the time of its exposure for the operation of stretching or incision of the sheath, would lead to the inevitable conclusion that we are dealing with a true neuralgia or a perineuritis in the majority of patients with sciatica.

After the diagnosis has been definitely established no matter what the etiological factors may be, the most essential features in the treatment, are rest of the limb and immediate relief of the pain. This may be accomplished by keeping the patient in bed lying on a mattress that is even and does not sink in the middle. In mild acute cases, thoroughly emptying the lower bowel, counter-irritation by friction with oil of gaultheria, the application of heat over the seat of the pain either by a hot water-bag, electric light lamp or a moist electric pad, etc., may suffice. The administration of codein and phenacetin, aspirin, sodium salicylate, salol and phenacetine, or atophan will often prove serviceable.

In severe cases, a hot saline rectal irrigation for ten or fifteen minutes followed by a suppository of opium and belladonna will afford prompt temporary relief. Later, superficial linear cauterization or the application of the galvanic or high frequency currents are useful.

Sacroiliac joint trouble may simulate true sciatica or be one of its complications. In doubtful cases fixation of the joint by the application of strips of adhesive plaster, will serve as a valuable therapeutic test by promptly relieving or diminishing the pain.

In a paper published nine years ago (*N Y Medical Record* Feb 17, 1912) I called the attention of the medical profession to the value of saline perineural injections in the treatment of sciatica. At that time, I reported twenty-five cases treated by this method, and stated that "perineural infiltration of physiological salt solution at the sciatic nerve when properly performed, is a valuable remedy for the relief of sciatic pain whether acute or chronic." In another paper read two years later before the New York County Medical Society (Dec 28 1914) which was published in the *N Y Medical Record* Feb 6, 1915 further observations were recorded in one hundred and thirty-five additional cases, representing in all about four hundred and eighty injections in one hundred and sixty patients.

Since that time I have carried out the injection treatment in over one hundred and fifty additional cases, making a total of three hundred and ten cases during the last nine years. Neither complications nor unpleasant symptoms have been encountered as a result of this procedure which under proper technique and strict asepsis is practically harmless.

The reaction of the patient cannot be determined in advance with any degree of precision or certainty. Some patients have been promptly relieved after a single injection, even when the sciatic pain had lasted for several years. But,

let me again emphasize the fact, that in the majority of patients from two to five or six injections are required, extending over a period of as many weeks. The average number is three.

Unfortunately, this has not been well understood, although it has been repeatedly explained to the patient as well as to his or her physician.

In many instances, in my experience, if the patient is not completely relieved after the first injection, further treatment is discontinued and the method unjustly abandoned and discredited. This is commonly the fault of physicians who either have a nebulous idea of its technique, or have not taken the trouble to familiarize themselves with the facts. Others have looked upon the injection treatment as a *dernier ressort*, which is a mistaken conception as to its indications.

During the last two years, I have also utilized the method of injecting saline solution with or without novocaine into the sacral canal, according to the technique originated by Cathelin in 1913. I have given about fifty of these injections. In the acute stage, and particularly in the radicular form (type B) this is at times more efficacious than perineural infiltration. I have also made use of both methods alternately in the same patient with beneficial results.

I do not recommend this treatment in every case, for many patients recover under the customary measures. In subacute and chronic intractable cases, however, it has proved in my experience to be the most satisfactory acquisition to our therapeutic armamentarium that has yet been devised. I therefore take this opportunity to reiterate that "from an economic standpoint, it is superior to any other form of treatment, for, in the majority of instances, the pain subsides rapidly and the sufferer is soon enabled to resume his customary vocation."

Many striking illustrations have been witnessed and reported. It has been a common experience to see men or women with sciatica, who have been incapacitated for many months without obtaining relief from the usual forms of treatment, rapidly restored to activity by this method.

It is unnecessary to further dilate upon the inaccuracy of the statement that all sciaticas are caused by joint disease.

The fact that many of these patients in whom the sciatica had lasted a long time, have been rapidly and permanently cured by a single injection, is ample refutation of such a preposterous orthopedic dictum. I do not, however, wish to belittle the fact now universally accepted but not sufficiently recognized, that disease of the pelvic or lumbo-sacral joints is often the cause of sciatica pain.\*

\* A detailed description of the technique of perineural infiltration will be found in my earlier papers above mentioned. The sacral or epidural injection is described in the article on "Sciatica" in *Handbuch der Neurologie* by Lewandowski, Vol II p 41 and under the title of "Sacral Anesthesia" by Allen, *Local Anesthesia* p 490, and by Hertzler, *Sacral Block* p 208.

## ASPECTS OF SOCIAL SERVICE AND PREVENTIVE WORK IN AN EYE HOSPITAL\*

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THERE has been steady progress in ocular therapeutics in the past fifteen years, but nothing has helped us so much in our hospital practice as has the development of a medical social service. It is in order to direct attention to what this factor may mean to an eye hospital that this paper has been written. This development together with the great advance in public health agencies have placed a very definite responsibility on the doctor today that he was previously not called upon to assume. In general, it may be said that, except in exceptional instances, to follow up the patient beyond hospital treatment was so difficult in former times that no responsibility to do so devolved on the doctor. Now that this has been made easy for us, we must accept the responsibility.

I wish to call attention to the various aids we now have in handling our hospital, and to a lesser extent our private cases. Some of you who do not come from the larger centers of population will doubtless say that is all very nice and easy for you men who have your large hospitals, your well developed social service, and all the public health aids which the large centers of population more and more afford. That is true, we cannot expect as much from the men in smaller centers, but we can at least expect from all the full use of the facilities which are at their disposal and we can urge them to acquaint themselves with these facilities. The day is probably not far distant when we shall see public health centers and community hospitals for the more rural districts, which will solve many of the now insoluble problems of medical service.

I propose to illustrate from our experience with Social Service at the Massachusetts Charitable Eye and Ear Infirmary.

Two of the greatest scourges of society today tuberculosis and syphilis bear an intimate relationship to our eye problems. How does it lie within our power to aid in the fight against these diseases?

The cases of frank ocular tuberculosis furnish an insignificant percentage of ocular disease, and I shall not further allude to them except to say that without aid given by social service it is impossible in my opinion to handle these cases satisfactorily.

The burden of proof now favors a very close relationship between phlyctenular disease and tuberculosis although in but a small percentage of cases do we find a frank tubercular lesion. We

know that most children acquire a tubercular infection before the age of fifteen and that in only a small percentage of them do active signs of the disease become apparent. When they do become apparent the child should be taken in hand and treated as a tubercular subject. My point is that phlyctenulosis indicates tuberculosis; it is an active sign of the disease. How many of these cases, so common in our eye hospitals, are classed and treated as cases of general tuberculosis? As has been pointed out before, the appearance of a phlyctenular child in our clinics opens up a large field of inquiry. Formerly it meant the outpatient treatment of the eye, or admission to the hospital if the disease were severe and on discharge from the hospital a talk with the mother or relative about diet and general hygiene, and usually the little patient returned after a short interval with eyes as badly inflamed as ever. We recognize now that the control of this disease is largely a problem of the home; the cure of the particular attack is usually easy, the prevention of future ones and the raising of the child to be a healthy member of society is the end we should strive for.

A large amount of information is necessary in order to determine the proper disposal of each case, the eye condition, general medical and special examinations and above all the hygienic conditions in the home. Is there active tuberculosis outside of the eye, if so, sanatorium treatment is probably best, this to be arranged for through our Social Service Department. Perhaps the condition of the eyes requires treatment in our eye hospital first. If the child goes to the sanatorium Social Service now forms the liaison between us and the sanatorium authorities. Social Service knows of the child's discharge, and takes the responsibility of seeing that all that has been gained will not soon be lost. Perhaps we are informed that hygienic conditions in the home are sufficiently good so that the child may remain there and through our Social Worker we instruct the mother in the hygienic necessities and oversee the home treatment of the eyes. One of the great needs we have felt is for convalescent homes for these cases. In summer through the various camps and children's institutions we can often give these children the fresh air and food they need. In winter it is much more difficult, and we must often keep the children in the hospital for a period when skilled eye treatment is no longer necessary. A large number of these children are below the school age and we usually have to send them back to their homes in which a great deal can be done by Social Service to improve living conditions. Or, if the home is impossible, we rely on Social Service to place them elsewhere.

It is my belief that these cases should be labelled tubercular or tuberculosis suspect, and

should be kept for some years under the supervision of those skilled in the handling of that disease

It is just such children who should be referred to the open air school classes and the nutrition clinics. All of you doubtless are familiar with the admirable work which is being done in this city in the organization and carrying on of open air classes and of the splendid results which are being obtained. I can refer you to the October number of the *Monthly Bulletin* of the New York Department of Health. There were 107 of these classes in January, 1921, taking care of some 3,000 pupils and there is great need for enlargement. If you are not familiar with this work, a visit to one of these classes is well worth your while and will show you the endless possibilities of them.

Another thing of importance—a visit to the home of the phlyctenular child will occasionally reveal the source of the tubercular infection, an active focus of tuberculosis in the community.

Social Service has given us great assistance in the organization for the treatment of interstitial keratitis. I am sure we will all agree that at least 90% of this disease is due to hereditary syphilis. Personally, I believe that 99% is a closer estimate. We will also agree that hereditary syphilis should be treated over a long period of time. Our experience is I suppose the same as yours that these patients come to our eye hospitals and follow our treatment either until the attack has subsided or they become discouraged and go elsewhere. Seldom do they return after the local manifestations in the eye have disappeared. The social worker furnishes the personal touch which is so necessary in obtaining the confidence of these cases. Each of these children represents a focus of syphilis in the community. For some years now we have, through our Social Workers, been referring these children and young adults with their families to the Syphilis Clinic of the Massachusetts General Hospital. The ocular inflammation is regarded as merely a local sign of a general disease. We treat it locally, and all general treatment is obtained in the clinic where these cases properly belong. Our Social Service, co-operating with theirs, induces as many as possible of the family to come in, and not infrequently untreated active syphilis is found in the father or the mother or both. The ocular disease having subsided, the local treatment becomes unnecessary, but general medication is continued so long as it is considered advisable. We have a social worker who devotes her entire time to interstitial keratitis, and that she has few idle moments is evidenced by the fact that on April 1st she had 108 active cases on her file. I may say that this plan has proved a very great success.

Another field in which Social Service and follow-up work seem to us to be of great importance is in the ophthalmia neonatorum group, and this from several standpoints. The ability to obtain breast milk for these babies is sometimes a deciding factor in the case. Too often for one reason or another the mother cannot accompany her child to the hospital, and we must obtain immediate contact with the home to see if arrangements can be made for sending in breast milk if it is advisable. The significance of the disease must be explained to the parents and they must be urged to obtain treatment for themselves, if the eyes of the future babies are to be safeguarded, also valuable work may often be done in preparing the home for the baby's return. The very successful campaign which has been waged in many states against this disease can be very materially assisted if every case presenting damaged eyes be investigated to ascertain whether the provisions of the law have been complied with. This should be done by the state, but is not as yet in our community, and until it is our social work forms a very important link in the campaign for the prevention of blindness.

The control of myopia is another matter to which we are beginning to direct our attention. Every year we see a certain number of cases that have become industrially unfit through progressive myopia. We are now registering our myopes with the idea of controlling those cases where progress is alarmingly rapid, while in the cases whose eyes have already become impaired we seek, through our Social Service, to place them in more suitable occupations. For the children whose eyesight has been materially and hopelessly damaged education has long been provided by our schools for the blind. For those with somewhat impaired vision and those with increasing myopia, the Defective Eyesight Classes are of the greatest service to us.

Pure follow-up work is of equal importance with social service, and is, I believe, best put under the charge of the social service department. In our Hospital, if follow-up be essential in a particular case, we note on the medical record the date when the next visit should be made, and if the patient does not return we take steps to learn the reason why. It is of great importance to follow in this way certain cases where sight may be lost speedily unless provision is made for effective and continuous treatment. I refer especially to the acute corneal ulcerations, acute iritis and injuries of the eye. Very frequently such eyes may be saved in spite of the disinclination of the patient to adopt the measures suggested. When I fail to induce a serious case to enter the hospital at once, I frequently find

that the persuasive power of the social worker will often turn the scale

In my experience the commonest cause of preventable blindness after 45 years of age is primary, non congestive glaucoma. In a list of the blind recently compiled at the Massachusetts Charitable Eye & Ear Infirmary, glaucoma was responsible for 26% of the cases. We will all agree that in a very large majority of these cases the disease can be checked if seen in the comparatively early stages. In many of these cases it is the carelessness of the patient in not seeking advice which leads to disaster. In not an inconsiderable number it is our failure to recognize the disease when it presents itself, and this at times in our private practice. How often do we recognize simple glaucoma in the first eye before a typical excavation has established itself? I have a hazy recollection of an English ophthalmologist of some note who said that every medical journal should print 'Glaucoma' in large letters on its cover. I believe that we should take the ocular tension as a routine in practically every middle aged and old patient who appears in our offices and even that would let some cases of glaucoma by.

Such a procedure is manifestly impossible in our larger clinics, but I do plead for a fundus examination of every case, for tension examination with the fingers and further investigation when suspicious signs are discovered. Too often these cases come to our notice when the disease is far advanced, and too often they fail to carry out the necessary treatment which is ordered for them. At our hospital we put these cases on the follow up file and observe them closely until we feel sure that they are trustworthy. They are then told to report every three or four months when a careful examination is made. In our experience, the incomplete fields so often taken lull the surgeon into a sense of false security. It is beyond question that in but few of these patients seen in hospital practice is miotic treatment to be considered.

What I have said indicates in a general way what our Social Service is doing. I have passed over the routine work, which forms a large volume of the service given, such as investigation, help and placing of cases outside the groups considered and its action as a means of contact between the hospital and the many charitable and other agencies which exist in every community. We accept this now as a matter of course. One thing seems very evident to me, and that is that social service and follow-up work are necessary to every hospital in order to obtain the efficiency which the public which supports us has a right to demand.

## THE LIMITATIONS OF MILK IN THE DIET OF THE OLDER CHILD \*

By FRANK VAN DER BOGERT M.D.

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WITH unquestionably the best of motives, the various Federal and State organizations devoted to the welfare of the child, led by the Children's Bureau at Washington and the Department of Agriculture, have for several years past been advocating increased consumption of milk by the growing child. The National Dairy Council, whose purpose according to one of its own publications is to encourage the production, stimulate manufacture and increase the consumption of milk butter, ice cream and cheese through its members and with possibly less altruistic motives is spreading wide the propaganda.

No one would, for one moment question the value of a reasonable amount of milk as part of the general diet but we must agree with the statement of Pritchard when in discussing malnutrition he says that 'Excess of food even though otherwise beyond criticism is as dangerous as unsuitable food itself.'

The laity always ready to accept new ideas of medical treatment reaching them through the press, have practically always gone to excess when carrying out these principles and over-enthusiasm upon the part of their advocates may easily defeat honest purposes.

In the endeavor to encourage milk drinking in large amounts, as a means of prevention and treatment of undernourishment many statements have been made which will not bear criticism. For example, the Association for Improving the Poor, of New York City, in its Food Primer for the Home, answers the question 'How much milk should children have?' by saying that every child must have one pint of milk a day to supply material for good bones and teeth and that every child ought to have at least one quart of milk a day because it is so easily built up into body tissue. Lydia Roberts in her article upon malnutrition published by the Children's Bureau, says that milk is about the only liberal source of lime. If this is so it is pretty essential to the development of the teeth and bones but the opinion of those who have studied the development of the teeth seems hardly in accord with this view.

Truby King believes that the larger portion of dry, hard or tough food a baby can be induced to masticate in his second year and onwards the latter. If he takes an abundance of solid food less milk will be needed. He cites the effects on jaws and teeth of feeding animals with foods not requiring mastication. Whether the animal be herbivorous or carnivorous jaws and teeth



fail to develop properly, and the teeth decay if hard food is withheld. Dog fanciers have observed that if pups are not given tough, hard or dry foods but are restricted to cooked meat, milk, mush, etc. their jaws and teeth show defective development and the latter soon decay and blacken.

Sim Wallace in his interesting little book on Child Welfare writes "The type of meal which is required for oral hygiene and the prevention of dental diseases should be fully developed at the end of the second or at least at the end of two and one half years, that is to say, the bulk of the food should require simple and thorough mastication. Milk should have by this time become a more or less negligible part of the diet."

One of the questions given by the New York State Board of Dental Examiners to applicants for license to practice dentistry, Jan. 27th last, reads as follows, "From what source are calcium and phosphoric acid obtained in suitable form for assimilation by the system to effect calcification of the teeth and bones?" The answer considered satisfactory to the member of the board responsible for the question was "From the vegetable kingdom." Can it be possible that milk is essential for the proper development of body tissues in later childhood when no animal in its wild state obtains milk after it leaves its nursing mother? Therefore, no child *must* drink any amount of milk nor should they be begged, urged or forced to take at least a quart.

The second and most prominent argument in favor of milk as a food in late childhood is its vitamin content. Raw milk, as a vitamin containing food, is an absolute necessity in infancy when milk is practically the only source of vitamin supply. Even here orange and tomato juice are advocated as an additional safeguard. Milk is by no means the only source of vitamins as is again demonstrated by the fact that wild animals and wild people get along without it. McCollum, in a speech before the National Dairy Conference in April 1918, could only emphasize that in a decade of experience he had not been able to make satisfactory diets except through the employment of either milk, eggs or the leaves of plants as prominent constituents of the food supply.

As a matter of fact, Hess quotes Barlow and Chick and Hume as demonstrating the fact that raw milk must not be considered as having potent antiscorbutic properties.

Bolt in his paper on the Chinese child calls attention to the extreme rarity in China of rickets and scurvy. Practically no cow's milk, I believe is drunk in China.

Morse under the caption "What Nature Teaches Us" says that as Nature provides a supply of breast-milk sufficient under normal condi-

tions for the needs of the baby for nearly a year it seems evident that Nature did not intend breast-fed babies to have eggs, meat and green vegetables when they were six months old. He feels, however, that Nature teaches us nothing as to what the baby should eat after it is a year old. By the same reasoning it seems fair to assume that if Nature supplies breast milk for only one year it is not intended to give milk after the first year. We have little opportunity to observe wild peoples. One of the few references which I have at hand is taken from a personal letter written me by Major W. C. Farabee who has spent some time on the Amazon country. He writes that babies are given bones to suck and nibble at as soon as they can hold them. It is possible to observe the feeding habits of other animals and we know that it is their habit to begin solid foods early, gradually accustoming the digestive tract to the task before it. The development of any organ must depend upon the work given it to do. Young carnivora pick and gnaw bones while still at the breast, herbivora begin early to crop. It is said that the cubs and kittens of all cats, from the lion down to the smallest wild cat, can digest raw meat very soon, and if they have been kept on milk slops, and are not doing well, a complete change to raw meat is almost miraculous in its rapid effect. Milk was unquestionably intended for the under-developed digestive tract of the infant. Where breast milk is not available, as among the birds, partially digested foods are administered in the early weeks. Young penguins, pelicans and cormorants take their food by thrusting the head down the throat of the mother, withdrawing semi-digested fish. Young buntings are fed, at first, regurgitated insects, later on insects in the raw state. Young flamingos feed each other.

These early methods are designed to protect the infantile digestive organs, but are not continued.

The value of milk as a food for invalids argues in favor of its adaptability to a feeble digestive apparatus. Dr. Hornaday writes me that he finds it of great value in the diet of bears who come to the Zoological Garden with their stomachs almost ruined by improper feeding.

In the hope of learning something about the importance of milk in the diet of the older child, feeding experiments were carried on at the Schenectady Children's Home during 1919. The period of observation, ten weeks, was too short to make the results conclusive, but they were at least significant.

The forty children were, as far as we could determine, healthy and ranged in age from 5 to 16 years, nineteen girls, twenty-one boys. They were divided into groups. One group was given milk twice daily, the other no milk, but, in order

to satisfy, cocoa made with water was substituted

Our findings were as follows

Average gain of milk fed girls	20 ounces
Average gain of no milk girls	13 ounces
Average gain of milk fed boys	23 4/9 ounces
Average gain of no milk boys	23 5/9 ounces

Largest gain, a boy on milk, 9 pounds, 8 ounces. Largest loss, a girl on milk, one pound eleven ounces. Four girls and two boys lost weight while taking milk, whereas only two girls and one boy lost on the milk free diet.

It is safe to conclude at least, that the absence of milk from the diet had little bad effect.

There are no statistics available as to the prevalence of malnutrition in past decades. Its seriousness has, however, only been appreciated within the past few years. Statistics obtained from the United States Department of Agriculture, though said to be unsatisfactory, point to an increase in per capita milk consumption in this country up to 1917. Incomplete records show that where in 1890 827 gallons were consumed in 1917, 928 gallons were taken.

If any inference is justifiable it is that increased milk consumption has not decreased malnutrition.

The treatment of malnutrition, as we are asked to accept it is based upon the assumption that deficiency of food rather than deficiency of ability of the digestive organs is the cause. Thus I believe to be absolutely wrong. The immense majority of undernourished children that I see are not underfed, they are overfed, irregularly fed, unintelligently fed. They get more than enough to eat but no opportunity to digest it and when they instinctively resent further feeding they are coaxed, begged, threatened and tempted to consume more milk in addition to what they realize has already made them unhappy and ill.

As suggested at the beginning of this paper there is no inclination to discount the importance of milk as a part of a well mixed diet. Practically all dairy products have their place in the dietary of the child but only upon the same basis as other food-stuffs having in mind that it is the ability of the digestive apparatus to cope with them that determines their nutritive value.

If a child must be given salt-herring in order to produce an appetite for mere milk, as happened in a case recently brought to my attention, if sugar must be added to make it palatable if as suggested in a 1921 edition upon Nutrition and Clinical Dietetics where there is an objection to drinking milk as such it must be incorporated into other dishes, cocoa, custards, milk soups etc. in order to get it down if it must be given at frequent intervals and at irregular hours, encouraging the most pernicious of all dietetic habits if bribery, deception and force must be resorted to in order to increase its consumption, it

becomes a real source of danger and the last state of the child will certainly be worse than the first.

There seems to be but one simple and very obvious conclusion, that no food however perfect or protective can possibly nourish unless assimilated.

If the more milk advocates will continue their efforts to the substitution of milk for tea and coffee and divert their educational campaign against pernicious dietetic habits, there will, I believe be hope of a greater accomplishment.

### Discussion

Dr CHARLES GILMORE KERLEY, New York. It is refreshing to listen to a paper on a subject of this sort from one who has had a large practical experience. We all get too much of our information from the theories of those who have limited opportunities for observation.

The teaching that one quart of milk daily is essential for every child is faulty and is the occasion of a good deal of dietetic trouble in run-around children.

The average child after the 18th month does best when given not over 16 to 20 ounces of milk daily. The majority of my patients do not get more than this amount after the 15th month. The use of large quantities of milk interferes with the appetite for vegetables and cereal which are most important for the growing child and for which milk cannot be substituted to his best interest. The habit of giving milk with the midday meal after three meals has been established is a very common practice by many and it is a bad practice. We would hear much less of indigestion bilious attacks recurrent vomiting, etc. if the administration of milk was a good deal curtailed and only given morning and evening.

In the event that suitable food is not possible for the growing child then milk in large amounts may be used advantageously as a substitute.

Dr WILLIAM H. DONNELLY, Brooklyn. Food indigestion for milk is rather uncommon and rarely recognized. One quart of milk is only one glass at each meal and one after school. McCollum proved in a group of 84 children that in 42 the addition of one quart of raw milk produced a gain of as high as 80 per cent. The other group failed to gain until they in turn got the raw milk. Pre school and school children are the victims of malnutrition pre eminently and the addition of one quart of milk is not an excessive quantity.

Dr HENRY C. SHIFFMAN, New York City. I agree with Dr Vander Bogert and Dr Kerley in their advocacy of emphasis on vegetables and food requiring thorough mastication but urge that one quart of milk per day in the diet



tumor in the case reported here is of congenital origin. My more than may be the belief that all neoplasms are of embryological genesis, but the association of this tumor with the cerebral condition also found, may be suggestive of some relationship in the light of the above mentioned observation.

Meyer (*Anatomical Record*, vol 12, p 79) records a case of porencephaly occurring in an aged female in which there was a papilloma 3 cm long 1 cm wide and 0.5 cm thick, situated in the wall of the stomach just in front of the pyloric orifice.

Various causes have been assigned by different writers for the condition of porencephaly whether occurring coincidentally with heart tumors or not. Kundrat and others believe that these cavity formations are due to faults referable to the circulation and arising during prenatal existence. They found obliteration of the vessels supplying the regions in which the cerebral defects occurred and ascribed the vascular change to thrombosis and embolism.

Virchow (*Archives* 1876 28, 127) and Seitz (*Arch f Gyn*, 1907, LXXX 701) believe the cause to be a prenatal hemorrhage which may be of traumatic origin the force causing the hemorrhage being transmitted through the abdominal wall of the mother. "The white substance was replaced by a cavity which involved also the cortical substance. Microscopic examination of the walls of the cavity gave evidence of former hemorrhage." The mother had been injured when four months pregnant this giving rise to the blood extravasation.

But this view has not met with general acceptance principally because hemorrhage within the fetal brain is extraordinarily rare. Seitz could find no other case in the literature than his own and Brallantyne (*Fetal Pathology*) mentions but one case that of Osler's.

Nevertheless it is a well established fact that intra cerebral hemorrhage especially in early life is followed by cyst formation the wall of the cyst becomes a firm connective tissue like capsule in which the interesting fact is present that there seems to be no attempt at contractions of the walls thus tending to a conservative obliteration of the cyst cavity.

But whether this condition could be considered a true porencephaly is doubtful. In the case noted in this article there could not possibly be any reference to hemorrhage as the cause of these cavities. The connection with the lateral ventricle with one of the cavities does not seem to admit the cavity formation as the result of hemorrhage but rather due to developmental fault, whatever the cause of this latter may be and the marked increase of neuralgia tissue points rather to an excitation of growth during embryonal life with a possible resulting gliomatous formation which (see below) by absorption, left the cavity as found.

The form usually taken by cardiac tumors is that of a polypoid growth, extending into the cavity of one or another of the chambers of the heart and are most often pedunculated. The variation from the usual form of implantation and mode of attachment of the tumor found in this instance as well as its size and the associated cerebral condition, may be of some interest.

The personal history of the individual who forms the subject of this report was unobtainable. He was an Austrian Jew forty-one years of age, married and a receiving teller in a bank. About one year before his death, he shot himself in the right temple supposedly over some financial irregularities. As a result of this injury he was two months in the hospital, and after leaving the institution he remained home until the time of his death. His family would give no information concerning his physical condition during the time he remained at home and all that is definitely known is that his wife found him dead upon the floor of the kitchen in his home.

The body was autopsied sixteen hours after death. The body was that of an adult male height five feet, eight inches. Estimated weight one hundred and seventy pounds well nourished and developed and of muscular type.

Just above the external angular process on the right side, was a round whitish scar, the skin surrounding which was dark blue in color. Upon removing the skull cap and opening the dura, it was seen that the portion of the dura mater covering the under surface of the right frontal lobe of the cerebrum was thickened tough and oedematous and was more firmly adherent than usual to the upper surface of the horizontal plate of the frontal bone. The pia mater beneath this was more vascular than normal and was opaque and thickened.

Examination of the base and inner table of the skull revealed no injury or the result of injury in the bones, and there was no evidence that any foreign body had at any time entered the cavity of the cranium. In fact, the bullet from the attempt at suicide lodged between the outer and inner tables of the skull and the pachymeningitis interna present on the under surface of the cerebrum, may or may not have been a late result of this injury, but most probably was.

Examination of the brain revealed in the anterior extremity of the right frontal lobe of the cerebrum a cavity deeply situated oblong in shape and measuring one and one half inches in diameter and two inches in length. The cavity lay entirely in the white substance of the brain nowhere communicating with or appearing upon the cortical surface. The wall of this cavity was white smooth and showed foldings, corresponding to the convulsions in this portion of the brain. No inflammation or products of inflammation were present and the cavity was filled with a clear fluid of watery consistency.

The condition found was porencephalus, the term being used in the sense here of "a common application to certain quite well defined congenital conditions, in which there is an absence of a portion of one or both hemispheres. These holes may lie deep in the substance of the brain—these may or may not communicate with the ventricles."

The lungs were deeply congested emphysematous and the right lung showed an old extensive, adhesive pleurisy.

The heart weighed seven hundred and fifty three grammes.

The longest vertical measurement of the heart including the tumor was eight and one half inches its widest transverse diameter, taken at the auriculo-ventricular junction, was six and three quarter inches, and its circumference, not including the tumor was twelve and one half inches.

The tumor mass was situated in the apex of the heart and involved only the wall of the left ventricle. The structure of the mass was in the form of a pronounced lamination being of alternating white (fibrous) and brown (muscle) layers the latter color predominating. The layers could be easily separated from each other, and while the mass was quite firmly adhered to the endocardium, its connection to the pericardium was loose and friable. The muscle substance of the tumor was continuous on all sides with the muscle of the ventricular wall, which seemed to have, at the apex of the heart, taken on a new growth activity at some time, and projecting downward, had extended between the endocardium and pericardium, widely separating each from the other, and carrying the outer covering before it, caused a thinning and lengthening of this membrane over the apex of the heart.

The growth measured two and one quarter inches in length, and two and one half inches in its greatest diameter. It was triangular in shape, and not firm to the touch. The base of the tumor was covered by the endocardium of the left ventricle. An abundant fat deposit was present on the outer surface of the heart and the muscle wall was light in color. There was, grossly, no apparent fat invasion of the tumor. All the heart valves were normal as were the great blood vessels of the chest and abdomen.

A section of the tumor was fixed in neutral formalin and stained with haematoxylin and eosin. Microscopic findings were as follows.

The greater quantity of the tissue of which the tumor was composed, as shown by the microscopic examination had undergone hyaline degeneration. Consequently but little structure detail could generally be made out. A few locations remained in which some definite tissue relationship and structure existed and some details could be appreciated.

The predominating cell is small irregular shape

type with clear staining cytoplasm, and a small dark nucleus, having a distinct nuclear membrane. These cells are not arranged with particular reference to any structural formation, being indiscriminately scattered throughout the field, but do seem, in one locality, to bear some relation to a blood vessel as they are grouped rather densely about this object.

Throughout the field, these cells are numerous, of uniform size, and resemble young connective tissue cells, though they appear rather small for this type of cell. They may be transverse sections of muscle nuclei, but their number and uniformity of size is against this idea. They conform to no type of blood cell. They are most likely to be connective-tissue cells prevented by local conditions of nutritional disturbance from attaining, after passing the embryonal stage, the typical spindle shape, adult type of connective tissue.

Next, there are spindle shaped cells with a deep staining protoplasm and a distinct and fair sized nucleus, scattered among the round cells and presenting no definite structural arrangement. These are connective tissue cells.

The other cellular element present is a rather larger nucleus, ovoid in shape with clear staining cytoplasm and a distinct (in some instances) nucleolus, the latter being darkly stained. This nucleus lies, peripherally, placed in a deeply red staining fibre which extends outward from either end of the nucleus for some distance.

In many instances there is more than one nucleus in the fibre. Most of these fibres run parallel with each other, thus forming a laminated arrangement, though some fibres intersect at right angles, the parallel fibres, but the crossings seem to be at a deeper level, as judged by the focus. No structure of the fibre can be made out owing to the hyaline degeneration present to a marked degree. But it is unquestionably a muscle fibre. It cannot be a fibroblast for the nucleus is not stellate and the fibre is too long and too thick. It cannot be a cardiac muscle fibre, for it was too long and too narrow, the nucleus was too small and not of the cardiac type shape and finally, it could not be made out that any branching occurred. It is my opinion that this was a muscle fibre of the skeletal type. If this interpretation is correct then this tumor was a rhabdomyoma.

A definite statement is prevented by the degenerative process but no structure resembling cardiac muscle could be made out in the tumor and the laminated arrangement, visible on gross examination would seem to lend favor to this view. A few large, poorly staining plasma cells were found adjacent to the few capillaries present in the specimen.

Five microscopic sections of the tumor were examined, and the same picture as described was present in each.

A section of the brain was stained by the

Golgi method and another with the Cajal method. These specimens contained demonstrable pathology.

Each specimen was taken from the wall of the cavity in the left frontal lobe. Just outside the marginal line of the cavity there is a great accumulation of cells in the white substance of the brain, which becomes less numerous as one passes away from the cavity. The nucleus and body of these cells are small and round and so darkly stained that no structure can be seen. With the Golgi impregnation neither cell nor nucleus could be made out. In certain localities they are thickly crowded in nests adjacent to which they occur scattered in every conceivable manner. Extending out from the body of these cells are the typical neuroglia rays, both short and long and many of the cells are detached from the rays.

No structure of the glia fibres could be determined, only their increase was apparent.

Nerve cells were sparsely present as the region from which the section came was not that of ganglionic areas. Without being able to describe the reason for the impression all the tissue elements of this specimen that were not too deeply stained appear old, creating the idea of having long since lost their activity and being worn out and the degeneration of many cells would seem to confirm the idea that the process of exuberant neuroglia growth had long since ceased. Few blood vessels and no collagenous fibres or connective tissue cells were present. Three additional specimens were stained with hematoxylin and eosin and all three presented the same microscopical picture.

The spleen was enlarged and showed a chronic passive congestion. The stomach showed a chronic gastritis and both kidneys were enlarged, firm, dark red in color and markedly congested.

These conditions were of course secondary to the vascular disturbance of the mechanically impeded heart's action due to the presence of the tumor. This impediment eventually reached such a stage that it caused a fatal embarrassment of the heart action and to this fact the death of this individual was directly due.

MacCallum (*Text book of Pathology*) has recognized the fact that not infrequently porncephaly is the result of congenital glioma undergoing degeneration: the debris of the tumor cells and the blood being replaced by clear fluid so that the area appears as a thin wall cyst with absent or fast vanishing traces of tumor tissue. This may be the underlying principle of the cavities found in this brain though if this be the case the disintegration and absorption process occurred long ago for there was no wall to the cavities other than the brain substance itself. But a gliomatosis was unquestionably present and the fact that the sclerosis did not extend to the surface of the brain but was rather limited to the vicinity of the cavities may indicate that their origin might have been of this nature.

The inter-relation of a brain condition of this character to a congenital heart tumor depending upon fetal vascular disturbances is somewhat difficult to understand. Just why a fetal malnutrition should operate to the establishment of correlated defects between the heart and brain any more than between the heart and any other organ, is not clear.

Granted that nutritional disturbances will affect the embryonal tissue in any locality where the disturbance occurs, it cannot be assumed that there is any more direct relation, from a nutritional viewpoint, between the heart and brain than between any other organs. A nutritional disturbance affecting two different organs as an inter-related result, in the embryo, must be brought about through the agency of the nervous system, if the organic disturbance is due in both organs to the identical nutritional fault. There is nothing else governing inter organic relationships.

There is nothing in the morphology of the nervous system that could possibly be construed as a functioning apparatus before the establishment of the sympathetic connections with the viscera which event occurs in the human embryo at 16 mm or about the forty-ninth day of gestation.

If we believe vascular disturbance produces the change in the cells which results in the brain and cardiac defects in an inter-related manner then the cause is not operative until after one and a half months of fetal development. But if we accept this view we cannot hold the theory of heredity influence in maldevelopment or tumor formation because under this latter belief the defect is inherent in the protoplasm of the cell which without this defect would develop in a normal manner and which defect would be present in the cell long before the functional capacity of the nervous system could be assumed to be developed.

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## CHOLECYSTITIS

By MARSHALL CLINTON, M.D., F.A.C.S.  
BUFFALO, N. Y.

(In this brief paper the author is attempting to place before this Association a single idea in regard to the etiology of cholecystitis and offers as an apology for the shortness of the argument the old statement that conversions are necessarily sudden to be effective.)

**D**URING the past few years attention has been drawn to the etiology of gall-bladder diseases by the valuable work of Rosenow, Mann, and others. The natural deduction which any physician makes who accepts their conclusions is that every case of gall-bladder disease is due to some focus of infection in teeth, tonsil, or other area. A general recognition of this view has been followed by a more careful investigation of teeth and tonsils and their common removal as a means of prevention of various diseases. In Rochester, N. Y., a very extensive experiment is being carried out, whereby 10,000 children have had their tonsils removed. It will be interesting to observe what influence, if any, this wholesale removal of tonsils will have on the future development of hematogenous infections among the victims. Were the views held by many of the best men in the country on the etiology of gall-bladder disease acceptable we would feel that any campaign to remove tonsils and teeth wholesale, fully justified.

However, there are certain facts found in analyzing the history of a considerable number of gall-bladder cases that do not jibe with their views, and we wish to call your attention to them.

For purposes of comparison we have studied the histories of a large number of appendix and gall-bladder cases, and we are struck at once by a curious result. The percentage of acute appendix cases are found about evenly divided among males and females. If we are to believe a hematogenous infection responsible for all these cases we would expect such an even distribution among the sexes. In gall-bladder disease, however, we find a curious disparity as compared to appendicitis. Roughly, four-fifths of the cases are in women, and of this number over 80 per cent have borne children. This excess percentage occurring in women who have been pregnant about represents the different percentage between men and women.

Certain observations made on all drained cases during the past year seem to suggest at least a most important factor in the etiology of cholecystitis. It has been pointed out that a drainage tube in the gall-bladder may be found to throw out duodenal contents. In cases where a drainage operation instead of a cholecystectomy was done our laboratory has made tests of the recovered bile to determine if regurgitation did occur, and under what conditions.

It has been generally accepted that the sphincter of the ampulla—the muscle band of Oddi—is normally competent to prevent regurgitation into the ducts during normal peristalsis, and that the valve-like entrance of the terminal end of the common duct into the duodenum will prevent regurgitation from the duodenum when the duct is inflated forcibly by fluid or air.

Trypsin is the substance which our laboratory men aver is conclusive evidence of regurgitation when recovered, mixed with the bile from the gall-bladder. In three drainage cases where tests for trypsin were made at intervals, duodenal contents were found when during convalescence sudden attacks of nausea occurred. In one other case was trypsin found in the gall-bladder at the time of operation, a case of pernicious vomiting of pregnancy, where under local anaesthesia drainage of the gall-bladder was instituted to relieve the pernicious vomiting.

Knowing that a normal peristaltic wave from the pylorus along the duodenum is accompanied by a proper closure of the ampulla, we have tried to puzzle out if there can be any relation between the occurrence of a reverse peristalsis in the duodenum and the incidence of cholecystitis.

The sphincter does not always work during a reverse peristalsis, and duodenal contents are forced along the common duct and into the gall-bladder, where distension and irritation of the mucous membrane may be followed by definite disease. We know that an analogous condition exists in the appendix.

Careful questioning of patients with gall-bladder disease shows a very high percentage of patients who have suffered with morning sickness during one or more pregnancies. We are at once struck by the incidence of gall-bladder disease and previous attacks of morning sickness. We feel that morning sickness, or any condition—such as chronic or recurrent attacks of appendicular colic—that produces nausea and sometimes vomiting, is the primary etiological factor in gall-bladder disease.

The type of gall-bladder disease and appendix disease where Rosenow's views are clinically acceptable are readily recognized, and are found chiefly among the more fulminating types. They give a different history, are more dangerous for the patient, and in our own clinic are noted as of the Rosenow's type.

The thought herewith presented, if substantiated by your own observations, leads one to wonder if our profession is not too hasty in recommending the removal of teeth and tonsils in some of our patients, and if whether all our patients so treated have received relief commensurate with the expense and trouble they have been subjected to.

\* Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 3, 1921.

## New York State Journal of Medicine

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street New York, N Y

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Chairman MICHAEL OSNATO MD New York.  
Secretary S. PHILIP GOODHART MD New York

## THE ART OF MEDICINE

THE practice of medicine embraces two distinct parts—the science of medicine and the art of medicine. They are of equal importance and mutually interdependent. In the past, great attention has been paid to the development and advancement of the science, but little to the growth and extension of the art of medicine. As a result the art of medicine has been neglected, and the practitioner is surprised at both the poor result and the lack of appreciation which accrues to him. The fault is his and is largely due to the fact that he has not cultivated those many little attributes which go to make up the art of medicine.

The object of this article is to emphasize these facts and to urge greater skill, care, and time in practicing the art of medicine. The art of medicine, while it requires the exercise and development of different talents from that called for in the science of medicine yet demands talents of a high degree, and talents the possession of which any man may be proud. These are knowledge of human nature, an analytical mind, resourcefulness, tact, force, interest, personality, and firmness. The tendency of the modern practitioner is apt to be too scientific. He must consider not only the disease but the patient, he must recognize both the environment and the idiosyncrasies of the individual and he must never lose sight of the fact that the successful management of the family of the patient is a very material factor in the successful management of the patient himself. The busy, whether rural or urban, appreciates and admires the art of medicine and are willing to pay for it. Under its magic spell they always improve and often get well. He who wishes to achieve real success in the medical profession must give attention to the practical and artistic side as well as to the scientific side of medicine.

## GENERAL HOSPITALS AND TUBERCULOSIS PATIENTS

The opening of wards in general hospitals for tuberculous patients as recommended by the American Medical Association at its recent annual meeting in Boston will it is believed by the U S Public Health Service be of enormous benefit not only to most of the two million known victims of the disease in the United States but also to thousands of others in whom the disease is incipient and easily suppressible if promptly treated. Tuberculosis in this stage is difficult and often impossible of positive diagnosis even by an expert and many persons even when told by their family doctor that their case is "suspicious" and that they should take precautionary treatment fear the stigma of an avowed tuberculosis hospital and put off action until recovery has become long and difficult. In a general hospital the diagnosis will not be made public but at the same time all necessary precautions can be taken to avoid danger of infection to others.

In support of the new policy it is argued that in many small cities two hospitals one general and one tuberculous can be run only at a loss but if combined would pay operating expenses especially as the com



bined hospital would draw many secret tuberculous cases. Many general hospitals could easily enlarge their facilities by fitting up wards, roofs, porches, and unused open-air spaces and thus provide greatly needed space for tuberculous patients, both former Army men and civilians.

The routine treatment of tuberculous patients in all general hospitals, instead of as at present in only about one-eighth of those in the country should enable people in moderate circumstances to obtain preliminary treatment in their home towns instead of being forced to go without or to go to resorts. Such preliminary treatment would habituate the patient to the regimen essential to his cure and to the protection of others and would enable him to go back to his home and get well under home treatment, as he probably would not have done without such training.

The result of opening the general hospitals to tuberculous patients will, it is believed, be very largely preventative and will thus be in line with the medical tendency of the day, which is looking more and more to prevention instead of to cure.

#### UNITED STATES CIVIL SERVICE EXAMINATION

ASSOCIATE IN CLINICAL PSYCHIATRY AND PSYCHOTHERAPY  
Applications will be rated as received until November 1, 1921

The United States Civil Service Commission announces an open competitive examination for associate in clinical psychiatry and psychotherapy. Vacancies at St. Elizabeth's Hospital, Washington, D. C., at \$2,500 a year, and in positions requiring similar qualifications, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Applicants must have graduated with a degree from a college or university of recognized standing, with major work in social science or psychology, or as M. D. or Ph. D., and, in addition, must have had at least three months' experience in work involving normal psychology. Additional credit will be given for work in abnormal psychology and for experience in the care and treatment of the insane, whether institutional or in mental hygiene or social service work.

A thesis may be submitted in lieu of, or in addition to, the applicant's other publications. If a thesis is submitted it must present the results of original work on the part of the applicant in some phase of psychotherapeutics.

#### ROENTGENOLOGIST ASSOCIATE AND ASSISTANT JUNIOR ROENTGENOLOGIST

Applications will be rated as received until December 1, 1921

Open competitive examinations are also announced for the positions listed above. Vacancies in the Public Health Service throughout the United States, in the position of roentgenologist at \$200 to \$250 a month, associate roentgenologist at \$130 to \$180 a month, assistant roentgenologist at \$90 to \$130 a month, junior roentgenologist at \$70 to \$90 a month, and vacancies in positions requiring similar qualifications, at these or higher or lower salaries, will be filled from these examinations unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

For the position of roentgenologist applicants must have been graduated from a recognized medical college with the degree of M. D., and have had at least three years' experience in the subjects mentioned in the above statement of duties of this position.

For the positions of junior, assistant, and associate roentgenologist applicants must have completed at least eight grades of common-school or equivalent education and have received a certificate of proficiency from or

establish equivalent schooling in a recognized hospital, medical college, or technical institution in X-ray, physics, and technology. In addition, applicants for junior must show one year's experience in X-ray activity, applicants for assistant must show three years of such experience, and applicants for associate must show five years of such experience.

All citizens of the United States who meet the requirements, both men and women, may enter these examinations.

Applicants should at once apply for Form 2118, for the position of associate in clinical, psychiatry and psychotherapy and on Form 1312 for the position of roentgenologist, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C., the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii, Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo., Old Customhouse, St. Louis, Mo., Administration Building, Balboa Heights, Canal Zone, or to the chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, including the medical certificate, but excluding the county officer's certificate, and filed with the Civil Service Commission, Washington, D. C., with the material required, without delay.

The exact title of the examination desired, as given at the head of this announcement, should be stated in the application form.

### Correspondence

#### NATIONAL BOARD MEDICAL EXAMINERS

The National Board of Medical Examiners has just completed the first five years' work and with it the trial period of its usefulness. The principle which this Board has stood for, namely, the establishment of a thorough test of fitness to practice medicine which might safely be accepted throughout this country and abroad, has been widely accepted. Since this Board was organized by Dr. W. L. Rodman, in 1915, eleven examinations have been held. These examinations have been conducted on the plan of holding at one sitting, a written, practical and clinical test for candidates with certain qualifications, namely, a four-year high-school course, two years of college work, including one year of Physics, Chemistry, and Biology, graduation from a Class A Medical School and one year's internship in an acceptable hospital. These examinations have covered all the subjects of the medical school curriculum and have been conducted by members of the Board with members of the profession resident in the place of examination appointed to help them. Examinations have been held in Washington, Philadelphia, New York City, Boston, Chicago, St. Louis, Rochester (Minnesota) and Minneapolis. Three hundred twenty-five candidates have been examined, 269 of whom have passed and been granted certificates.

Starting with the endorsement of the Council on Medical Education of the American Medical Association, American Medical College Association and various sectional Medical Societies, the recognition of the Army, Navy and Public Health Service Medical Corps of the United States and certain State Boards of Medical Examiners, the certificate is now recognized also by twenty states as follows: Alabama, Arizona, Colorado, Delaware, Florida, Georgia, Idaho, Iowa, Kentucky, Maryland, Minnesota, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Pennsylvania, Rhode Island, Vermont and Virginia, the Conjoint Board of England, the Triple Qualification Board of Scotland, American College of Surgeons and the Mayo Foundation of the University of Minnesota.

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There has been such a wide spread demand for an opportunity to secure this Certificate by examination that the Board has now adopted and will put into effect at once the following plan Part I, a written examination in the six fundamental medical sciences Anatomy including histology and embryology, Physiology Physiological Chemistry General Pathology Bacteriology, Materia Medica and Pharmacology Part II a written examination in the four following subjects Medicine including pediatrics neuropsychiatry and therapeutics, Surgery including applied anatomy surgical pathology and surgical specialties Obstetrics and Gynecology Public Health including hygiene and medical jurisprudence Part III a practical examination in Clinical Medicine including medical pathology applied physiology clinical chemistry clinical microscopy and dermatology Clinical Surgery including applied anatomy surgical pathology operative surgery and the surgical specialties of the diseases of the eye ear nose and throat Obstetrics and Gynecology Public Health including sanitary bacteriology and the communicable diseases

Parts I and II will be conducted as written examinations in Class A Medical Schools and Part III will be entirely practical and clinical In order to facilitate the carrying out of Part III subsidiary boards will be appointed in Boston New York Philadelphia Minneapolis Iowa City San Francisco Denver New Orleans Baltimore Galveston Cleveland St. Louis Chicago Washington D C and Nashville These boards will function under the direction of the National Board The fee of \$25.00 for the first part \$25.00 for the second part and \$50.00 for the third part will be charged In order to help the Board the Carnegie Foundation has appropriated \$100,000 over a period of five years

Further information may be had from the Secretary Treasurer Medical Arts Building Philadelphia

## Deaths

CORNELL, ISAAC MARTENSE Wappingers Falls New York University, 1877, Member State Society Died July 16 1921

DFANE, WILLIAM CURTIS New York City, New York University 1884, Member State Society Died August 27, 1921

DREWITT, MAURICE Buffalo University of Illinois 1919 Member State Society Died July 9 1921

ERHARD PHILLIP Syracuse Syracuse 1902 Fellow American Medical Association Member State Society Syracuse Academy of Medicine Died July 7 1921

GRAY, HERBERT LFF New York City Johns Hopkins 1906, Member State Society, American Urological Society Died July 23 1921

HIRST, PATRICK JOSEPH Salisbury Center, Albany Medical College 1910 Fellow American Medical Association Member State Society Superintendent Herkimer County Tuberculosis Sanitarium Died August 8 1921

MAHADA, CHARLES ROGER Rome Baltimore Medical College 1897 Fellow American Medical Association Member State Society Physician Rome Hospital Died August 6 1921

TAPT, ROBERT MACLEAN New York City, New York University 1894 Member State Society, Alumni Bellevue Hospital Died August 8 1921

VANDERHOOF, FREDERICK D Phelps College Physicians and Surgeons New York 1864 Fellow American Medical Association Member State Society Died July 29 1921

## District Branches

### ANNUAL MEETINGS FOR 1921

First District Branch—Wednesday, October 19th, in Nyack

Second District Branch—Saturday, October 22d, in Garden City

Third District Branch—Thursday, October 13th, in Troy

Fourth District Branch—Tuesday, September 13th in Schenectady

Fifth District Branch—Wednesday, October 5th, in Watertown

Sixth District Branch—Tuesday, October 4th, in Glen Springs, Watkins

Seventh District Branch—Thursday, October 6th, in Rochester

Eighth District Branch—Thursday, September 8th in Buffalo

### THIRD DISTRICT BRANCH

#### ANNUAL MEETING TROY, N Y

October 13 1921

The Morning Session will begin at 9 A M and will be devoted to clinics and demonstrations at the hospitals of the City of Troy

Luncheon 1 P M at Marshall Sanitarium

#### SCIENTIFIC SESSION, 2 P M

Social Tendencies and the Medical Profession  
James F. Rooney M.D. President Medical Society of the State of New York Albany N Y

Title to be announced later

Edward Livingston Hunt M.D. Secretary Medical Society of the State of New York, New York City

Title to be announced later

David S. Houston M.D. Troy

'Some Studies of Blood before and after Etherization'

Mary Gage Day, M.D. Kingston

### SIXTH DISTRICT BRANCH

#### ANNUAL MEETING WATKINS N Y

11 A M October 4 1921

Stool Examinations and Their Relation to Clinical Entities

A. A. Eggstein M.D. New York

'The Physical Destiny of Man'

William D. Johnson M.D. Batavia

Differential Diagnosis Syphilis and other Dermatoses illustrated by slides

Grover Wende M.D. Buffalo

Title to be announced later

Edward Livingston Hunt, M.D. New York

'Hypertension'

Albert Warren Ferris M.D. Glen Springs Watkins

Supplemented by an exhibit and demonstration of X-ray plates of the heart Allen W. Holmes M.D. and of electrocardiograms John H. Carroll M.D. Glen Springs, Watkins

A luncheon will be served at the Glen Springs at 1 P M the members and their friends being the guests of Glen Springs

**ELECTRO-THERAPEUTICS FOR PRACTITIONERS** By FRANCIS HOWARD HUMPHRIS, M.D. (Brun.), F.R.C.P. (Edin.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), L.M. (Rot., Dublin), D.M.R.E. (Cantab.) Illustrated. Second Edition, Revised and Enlarged. Oxford University Press, New York 1921. Price, \$7.50

This new edition of a classical book has been given a more systematic arrangement, and is a welcome addition to the literature of the subject. It covers the subject of static electricity wonderfully well, notably for the technic of the static wave current for sprained ankle and enlarged prostate. The inflammatory exudate from a sprain is quickly absorbed and the long stiffness which used to follow rest cure is avoided. There is ample corroboration of the good results Humphris reports in prostatic cases.

Equally well presented are the subjects of high frequency currents, including diathermia and treatment by high frequency sparks.

Phototherapy, radiotherapy and galvanic, faradic and sinusoidal current treatments are concisely and authoritatively described. Half the volume considers diseases in regular order, and gives the best electrical treatment for each.

A special section is devoted to the melted paraffin wax bath. It is used for various conditions, including chilblains, neuritis, rheumatic and gouty joints, fibrositis, especially in and around small joints, scleroderma following old lymphangitis, cramp in the calf of the leg (intermittent claudication, also cicatricial contractions, spastic and other contractures due to nerve injury. Directions are given for composition and temperature.

**DE L'ANAPHYLAXIE A L'IMMUNITÉ** MAURICE ARTHUS, Professeur de Physiologie à l'Université de Lausanne. Octavo of 361 pages. Masson et Cie, Editeurs. 120 Bd Saint-Germain, Paris, 1921. 20 fr.

The author is professor of physiology at the University of Lausanne, who has carried out personally two thousand experiments in the field of anaphylaxis.

He attempts to present the physiological concepts which may at this time be accepted as proven.

Students of the problems of anaphylaxis will, if they read French easily, find extremely interesting material set forth here by a tireless and original worker.

W. H. DONNELLY

**PRINCIPLES OF HUMAN PHYSIOLOGY** By ERNEST H. STARLING, M.D. Third Edition. Octavo of 1,315 pages with 579 illustrations. Philadelphia, Lea & Febiger, 1920. Cloth, \$8.00.

The third edition of Human Physiology by Starling is the satisfying product of an earnest effort to give to students of medicine a modern, exhaustive, text book of physiology.

The table of contents offers an introduction to the subject, three chapters on general physiology, and seventeen chapters on the mechanisms of movement and sensation, nutrition, and reproduction.

Written in an easy style, and always considerate of the necessity of demanding the minimum of previous knowledge from the student, the explanations of methods of investigation and of the processes of reasoning in the elaboration of hypotheses and theories, are so lucid, that what might otherwise be ponderous study is found to be pleasing reading.

The reviewer would suggest that in succeeding editions the chapter on the Autonomic System be further developed, and consideration be given to the importance of joint surfaces in the discussion of the mechanism of movement.

HARRY KOSTER

**GRAPHIC METHODS IN HEART DISEASE.** By JOHN HAY, M.D., F.R.C.P. With an introduction by Sir James Mackenzie, M.D., F.R.C.P. Second Edition. Oxford University Press, New York City, 1921.

The first edition of this book appeared twelve years ago, before the advent of the electrocardiograph and before such conditions as auricular fibrillation, auricular flutter, and the various forms of paroxysmal tachycardia were recognized. The present edition is modified to include a description of these conditions. The electrocardiograph receives but one short chapter, the greater part of the book being devoted to the interpretation of polygraphic tracings. The book is designed as an introduction to the study of the graphic methods and should fulfill this function particularly well. While the study of polygraphic tracings is often more difficult and, in some instances, less accurate than the study of electrocardiographic tracings the experience gained by such study affords a clearer conception of the actual mechanics of the heart than can be attained in any other way. It is therefore a satisfaction to see some emphasis placed upon polygraphic studies in these days when the electrocardiograph seems to be monopolizing the field. The book is clearly written and contains a large number of tracings from the study of which one should be able to become efficient in the making and interpretation of polygraphic records. The chapter on the electrocardiograph is almost too fragmentary to give more than an idea of what might be expected by further study of the same.

T. H.

**MEDICAL NOTES** By SIR THOMAS HARDER, M.D. (Lond.), F.R.C.P. (Lond.) Oxford University Press, New York City, 1921.

This little book is of pocket size and consists of only about a hundred pages. The author disarms criticism in his preface, in which he gracefully presents his ideas for the reader to take of leave at his pleasure. Brief comments on sixteen medical conditions are brought together in a very readable manner. They are necessarily dogmatic, but all encourage clear thinking and accurate expression. Probably every reader will take exception to some of the statements, but there is so much that is keen and unusual that such a difference of opinion will have but little weight in his appreciation of the worth of the book. The author is a teacher of medicine and to teachers in particular these medical notes should be of great value.

T. H.

**AN INTRODUCTION TO BACTERIOLOGY FOR NURSES** By HARRY W. CAREY, A.B., M.D., Second Revised Edition. 1920. Price, \$1.25. F. A. Davis Co., Philadelphia, Pa.

The second edition of Dr. Carey's work is a revision of the first edition, with the necessary additions to bring it up to date. It is written in a simple and clear manner, and very well answers the purpose for which it was published.

**THE LOGIC OF THE UNCONSCIOUS MIND** By M. K. BRADBY. Published by the Oxford University Press, New York City. 1920. Price, \$6.40.

This book, showing the influence of unconscious motivation on reason and judgment, is a very interesting one. Though primarily of benefit to the student of psychology and psychopathology, Part II of this treatise, discussing various cases which demonstrate how unconscious motives are the source of numerous fallacies, would be of value to every physician.

While the author cannot be credited with ultra-Freudian, nevertheless the conservative influence of the good points of psycho-analysis cannot be denied. The sincere student of rational thought, approached from this angle, follows a new and interesting exploration. The book is worth reading.

J. F. W. MEAGHER

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

VOL 21, No 10

NEW YORK, N Y

OCTOBER, 1921

## THE INTERPRETATION OF THE HISTORY IN SURGICAL AFFECTIONS OF THE RIGHT UPPER QUADRANT \*

By CHARLES GORDON HEYD, A B, M.D.,  
NEW YORK CITY

**A** CLINICAL history is the citation of the symptoms of disease in the order of occurrence. As a corollary to this, diagnosis may be defined as largely a correct interpretation of the clinical history aided by physical examination and special tests.

The differential diagnosis of affections of the right upper quadrant resolves itself essentially into an inquiry as to the causation of the various forms of dyspepsia. Dyspepsia, however, arises from so many divergent causes that its translation into a clinical entity is oftentimes difficult. In the phylogenetic development of the gut tube there has come about a subdivision in morphology, physiology and function and the stomach gives forth reflex symptoms from a variety of diseased organs more or less remotely situated.

Of 100 persons complaining of gastric distress, or what may be collectively called dyspepsia, in only twenty persons will the cause of the symptoms be due to organic disease of the stomach. In 40 per cent the lesion will be within the abdomen but remote from the stomach, while in the remaining 40 per cent the pathologic process will reside entirely outside of the abdomen.

Clinically our problem is to differentiate gastro duodenal ulceration, gastric carcinoma, disease of the biliary apparatus (including pancreatitis), appendicitis—both acute and chronic—and to a lesser extent lesions of the kidney and colon.

Vander Hoof analyzed the cause of indigestion in 1,000 cases and found that appendicitis was the causal factor in approximately 25 per cent, cholecystitis in 10 per cent, peptic ulcer in 10 per cent, neuroses in 10 per cent, cancer in 5 per cent, viscerosptosis and intestinal stasis in 10 per cent while miscellaneous affections of kidney, lungs, eyes, etc. constituted up to 30 per cent. It is a sad diagnostic

commentary when 97 out of 1,000 tabetics have had a laparotomy for a supposed intra-abdominal lesion, 19 for gastric ulcer, 19 for gallstones, 18 for appendicitis and 13 for salpingitis.

The symptomatic evolution of acute appendicitis is so definite that it should be one of the few acute abdominal inflammations easy of diagnosis and with early surgical intervention without mortality, yet the records of all general hospitals show a death rate varying from 4 to 6 per cent, and recently a report was presented from one of the large New York hospitals of a mortality of 16 per cent.

One may summarize the symptoms of acute appendicitis within the first twenty-four hours by the onset of pain, colicky in character with epigastric distribution followed by nausea or vomiting, or both, generalized abdominal sensibility, fever and leukocytosis. During the second twenty-four hours one of three processes takes place: (1) drainage of the products of infection back into the cecum, (2) gangrene, (3) perforation. When either of the latter two eventuate the entire clinical picture is changed and we have the localization of the infection to the right lower quadrant from perirrhinitis inflammation and exudation. At this stage the pain is not colicky but constant in character, localized to the right lower quadrant, with tenderness in the neighborhood of McBurney's point, muscle spasm and abdominal rigidity, with paralysis of the intestines in the attempt to splint the inflammatory process. The clinical picture at this stage is one of localized intra peritoneal abscess.

The history of a chronically diseased appendix is peculiar and typical and has none of the precision in its symptomatology that comes with acute appendicitis or with infection of the gall bladder or gastro duodenal ulceration.

"Appendix dyspepsia" is a varied and indistinct clinical picture. It is usually more difficult to diagnose than either the conditions of ulcer or disease of the gall bladder. If one can eliminate either of the two conditions named above it should be possible to arrive at a diagnosis of appendicular dyspepsia by elimination. The chronically infected appendix produces epigastric distress which is a source of intermittent annoyance or sense of ache and usually with

no distinct relationship to food. The pain or distress is apt to be aggravated by activity and motion and is occasionally relieved by an enema or a cathartic. It is not infrequent for appendicular dyspepsia to be associated with a history of acute attacks, and occasionally local appendiceal pain may be elicited.

It is noteworthy that the pain and distress is usually more prolonged than similar occurrences in disease of the gall bladder. The distress is usually low down in the epigastrium, at or about the naval, and lacks the distinct character of localization as in biliary disease. Articles of food that at one time are associated with indigestion may be eaten with zest and relish on other occasions. The symptoms are due in the majority of cases to a pylorospasm with pain, increased secretion, increased acidity, gaseous and sour eructations, and occasionally vomiting. This variability in so far as its diagnostic possibilities are concerned, may be best epitomized by the statement of Moynihan that the most frequent site of ulcer of the stomach is in the right lower quadrant.

The ordinary post-mortem incidence of disease of the appendix is approximately 17 per cent. It is interesting to note that the appendix shows pathologic changes in 69 per cent of the cases of cholecystectomy, whereas 55 per cent show disease of the appendix in cholecystostomy. Gastric ulcer is associated with disease of the appendix in 54 per cent of cases, while duodenal ulcer is associated with disease of the appendix in 66 per cent of cases, and in 15 per cent of all laparotomies there are two lesions sufficiently severe to warrant operation.

It must not be forgotten that chronic disease of the appendix may occasion a rather severe hematemesis. Hutchinson records 24 cases of fatal hemorrhage from the stomach after operations of various kinds upon the abdominal viscera. Of these 24, 21 were cases of appendicitis with septic complications. I have records of 4 cases of pronounced gastric hemorrhage which on very extensive abdominal exploration revealed no morbid process except in the appendix, and following an appendectomy there was a cessation of the gastric distress and gastric hemorrhage. Gastric hemorrhage has been experimentally produced by Rogers by injecting chemical irritants into the cecum and ascending colon, while irritation of the colon, *per se*, has been shown to bring about a gastric stasis and the delayed passage of food material through the small intestine.

Barclay recently has drawn attention to the spasmodic closure of the pylorus following reflex stimulation from the terminal ileum, when there is too rapid overloading of the small intestine with chyme. Biologically the ileocecal valve represents a point of chemical and bac-

terial partition, for at the cecum we have a change in chemical reaction, maximum bacterial flora, a maximum fluidity, anastalsis, predominant lymph tissue and a point of natural or normal stasis.

The gall bladder, the liver, the pancreas, and the stomach are embryologically, anatomically, physiologically, and pathologically closely related, and should be considered as one physiological system. Infection is the pathological activator of disease of the biliary apparatus, and while it is true that a gall bladder may be sterile and yet contain stones, infection must have been present at the time the calculi were originally formed. In disease of the gall bladder only approximately 75 per cent are associated with stone, the other 25 per cent represents varying degrees of infection not associated with the formation of calculi. Irrespective of the presence of calculi in disease of the gall bladder the histories of a large number of cases will be found to present a composite picture in which four well-defined pathologic stages are evidenced and which clinically may be translated into four sequential clinical pictures: (1) when the disease is confined to the gall bladder, (2) when there are attacks of biliary colic, (3) when calculous obstruction to the common duct intervenes with or without jaundice, and (4) when, as a result of infection or trauma to the common duct, there is an associated or coincident disease of the pancreas.

If we conceive the stomach as exercising in the main two functions—that of motor function and secretion—we may reasonably expect that any irritative condition that reflexly affects the stomach would probably cause an aberration in one or both of these two functions. For a long time medical opinion considered gallstones the only pathologic evidence of diseased gall bladder and gallstones were interpreted as the essential pathologic process. With refinement of diagnosis, the extraordinary development of the X-ray and other laboratory procedures there has ensued a reconstruction of our pathologic conceptions of the affections of the biliary tract. From the study of morbid anatomy at the operating table it has become definitely established that it is the infection of the biliary tract itself which gives the surgical indication rather than the accidental sequelæ or incidental occurrence of stones.

In the strawberry gall bladder of Moynihan stones are absent, likewise in some forms of fibrosis of the gall bladder. The inaugural symptoms of cholecystitis are those of a qualitative dyspepsia. This indigestion is due to motor and secretory disturbances in the stomach reflexly produced by infective changes in the gall bladder. In gastroduodenal ulceration the history reveals a distinct regularity in

symptomatology, while in gall bladder disease the dyspepsia is vague, irregular, with an ill-assorted grouping of symptoms of flatulency, heart-burn, eructations, belching, fullness, weight in the epigastrium, etc. This indigestion conforms to no rule and exhibits no constancy. It is characterized by an absence of periodicity, and its most predominant symptom is gas production.

There is usually some tenderness along the right costal margin. There may be a catch in the right side upon taking a full breath, and occasionally after large meals a slight sensation of chilliness or goose skin sensation. This gaseous indigestion is characteristically made worse by the eating of any fried foods or greases or, less commonly, apples, nuts and cheese. There usually is some relief upon the raising or belching of gas, and almost complete cessation of the symptoms upon vomiting. Occasionally the history is obtained of the patient retiring after dinner and voluntarily inducing vomiting with almost complete amelioration of the symptoms. It is noteworthy that the patient is relatively free from symptoms when the stomach is empty, in marked contrast to duodenal ulcer, where the patient is usually at his best when food material is in the stomach. This form of indigestion may continue for a variable period of time and exhibit itself without any marked variation in the above picture. After a long or a short period of the above qualitative dyspepsia there is introduced into the patient's history another symptom, different from any of the preceding symptoms and which is represented in a sudden, acute attack of agonizing pain. The onset of the second phase of symptoms is quite characteristic—out of a clear sky, without any warning or premonition the patient is seized, usually in the evening with a sudden, intense severe attack of cramp-like pain in the right upper quadrant. This pain comes on like a stroke of lightning radiates through to the back, occasionally down the right side or up over the right chest and less frequently toward the left breast. It is of maximum intensity, is associated with restlessness upon the part of the patient, and usually so severe as to require the presence of a doctor and an hypodermic injection of morphine. This agonizing pain lasts a variable length of time, four to six hours disappears almost as quickly as it came leaving a residual soreness in the right upper quadrant or along the right costal margin. There may or may not be in addition some temperature during the height of the paroxysm.

In considering jaundice in biliary disease statistical inquiry has demonstrated that, according to its frequency, jaundice may be classified in the following order: (1) gallstones, (2) catarrhal jaundice, (3) cancer of the liver

(4) cirrhosis, (5) cancer of the bile ducts and gall bladder, (6) cancer of the pancreas, and (7) gastric and duodenal carcinoma. It will readily be seen that by eliminating catarrhal jaundice and cirrhosis of the liver the diagnosis becomes one of differentiating between the jaundice due to gallstones and that from malignancy of the bile ducts.

Catarrhal jaundice is an example of a disease named after its most prominent symptom. Its designation is without any adequate or stable pathologic basis. The diagnosis of catarrhal jaundice is one of the most insecurely founded of all diagnoses at the present time. Jaundice that comes on with or without gastro-intestinal disturbances, that has a duration of four to six weeks and then spontaneously clears up, must, however, without present knowledge be designated catarrhal jaundice. The outstanding clinical feature is the slight systemic change in the presence of jaundice. Herein it differs from all other types of jaundice where the systemic changes are marked. Emaciation during an attack of jaundice has little clinical value, as emaciation occurs equally with gallstones, catarrhal jaundice and malignancy. Finally, only a "cure" within six to seven weeks can be considered as establishing the diagnosis of catarrhal jaundice.

A case of jaundice that does not clear up within six weeks is either a complication of another condition or the diagnosis is wrong. The deep green or black color of pure obstructive jaundice is never seen in catarrhal jaundice although the effects of long-continued icterus may be evident. Stupor never occurs in the mild type of jaundice and is absent in gallstones, and even in malignant disease except at the terminal stages. Only in two forms of liver disease is stupor a factor in the presence of jaundice, namely cirrhosis and acute yellow atrophy.

The diagnosis of calculous disease of the common duct rests upon colic icterus and sepsis, and the symptoms occur in that order, and one is impressed by the fact that at the time the patient presents himself jaundice is absent in about 25 per cent of cases. Inquiry, however, will reveal that in the larger proportion of cases there is a history of a jaundice with preceding colic.

Between attacks of calculous obstruction of the common duct the patient may be apparently well but is practically never free from the subicteroidal tint or slight jaundice. The patient is designated as sallow when she is really suffering from a continuous and persistent low grade jaundice or a jaundice of remittent intensity. Many of these patients who are persistently sallow notice that the jaundice varies during the day becoming deeper toward evening. With each attack of pain and jaun-

dice there is a fever of a characteristic "steep chart" type, while early in calculous obstruction the liver is enlarged and generally the spleen

The resultant pathologic condition is a dilated and infected common duct with a calculus floating up and down—the ball-valve stone of Osler and Fenger—and the mechanical factor is chronic intermittent intrinsic occlusion of the common duct

Stone in the common duct is preponderantly the result of a previous infection of the gall bladder as 99 per cent of gallstones are formed in the gall bladder and to reach the more ample common duct must migrate through the cystic duct. Calculous cholangitis predicates a chronic cholecystitis with cicatrization and contracture. In 187 cases of obstruction of the common duct reported by Courvoisier in 100 obstruction was due to causes other than stone and in 87 the obstruction was due to calculous impaction. Of the 100 cases in which obstruction was due to causes other than stone in 92 there was a dilatation or distention of the gall bladder and in 8 cases there was a normal gall bladder or an atrophy of the gall bladder. Of the 87 cases in which obstruction was due to stone in 70 cases the gall bladder was atrophied and in 17 cases the gall bladder was dilated. Courvoisier then enunciated his law "In cases of chronic jaundice due to blocking of the common duct a contraction of the gall bladder signifies that the obstruction is due to stone a dilatation of the gall bladder that the obstruction is due to causes other than stone"

In 84 per cent of cases with stone in the common duct we find a contracted gall bladder. Therefore a case of obstructive jaundice with (1) history of colic (2) distinct variations in the intensity of the jaundice (remittent and intermittent) "ebbs and flows" (3) absence of distention of the gall bladder (4) presence of septic reaction—chill, fever, sweat, leukocytosis (5) continuous or occasional presence of bile in the feces (5) chronicity, the diagnosis is almost positively calculous cholangitis

The clinical differentiation of acute pancreatitis is sometimes difficult and the description of Fitz is even today the best epitome upon its diagnosis. "Acute pancreatitis begins with intense pain, especially in the upper abdomen, soon followed by vomiting, that is likely to be more or less obstinate, and not infrequently slight epigastric swelling and tenderness, accompanied with obstinate constipation. A normal or subnormal temperature may be present and symptoms of collapse precede by a few hours death which is most likely to occur between the second and fourth day." Clinically, it cannot be distinguished from high intestinal obstruction

A number of men, Archibald particularly,

have gone so far as to claim chronic pancreatitis is a common abdominal complaint and capable of diagnosis. "Given a case with acute abdominal pain referred chiefly to the upper half of the abdomen, if upon examination one finds the greatest tenderness located in the epigastrium about midway between the umbilicus and the ensiform cartilage, extending perhaps 1 inch or 1½ inches to the right, and in particular a similar distance to the left also, while absent over the gall bladder region, if further in the history there are absent symptoms of gastric or duodenal ulcer, and there is no evidence of intestinal obstruction, then this case is in all probability one of pancreatitis"

The history of pancreatic or biliary carcinoma is distinct. The genesis of a tumor requires time and the history of the onset of jaundice in malignancy is succinct and characteristic. By slow growth a neoplasm initiates from day to day only minimal changes, whereas vascular or inflammatory processes produce extensive changes within a short time. Neoplasms of the biliary apparatus, the pancreas or the contiguous portion of the duodenum early invade or compress the termination of the bile and pancreatic ducts. Jaundice develops imperceptibly and without pain, so that from day to day it seems hardly to advance in intensity, but without pause or hesitation, without intermitting or remitting, it progressively deepens in intensity from mild to severe, from lemon to black, until it becomes the typical icterus melas. Its evolution is not associated with colic and in its earlier stages is usually devoid of pain. It is not associated with chills, fever or sweats nor leukocytosis. With such a history malignancy is the probable diagnosis, and when this history is associated with a palpable or distended gall bladder the diagnosis is almost positive

The ingestion of food under normal circumstances is accompanied by a reflex process which is not perceived—a subconscious reflex—and when pain arises from the ingestion of food it points to an irritable process of the cord through which these reflexes pass as a result of oft-repeated painful stimuli. The epigastric region is essentially the place to which sensory symptoms are referred and the upper part of the left rectus muscle usually contracts first in response to an irritation from the stomach

Peptic ulcer is a distinct organic ulceration of the gastro-duodenal portion of the gut tube, and within its type the symptoms are constant, and, as a rule, characteristic. Variations in symptomatology depend to a considerable extent upon the localization, and 70 per cent of all peptic ulcers are located so as to interfere with the emptying power of the stomach. In the diagnosis the history is all important. Palpation, percussion and auscultation give evidence of very limited

value chemical examination of gastric contents gives some confirmatory value only. The presence of gastric blood will be absent in over 75 per cent of cases while roentgen ray examination is positive in 67 to 80 per cent of cases of duodenal and gastric ulcer respectively.

We may therefore say that the patient with a gastro duodenal ulcer presents in the main a history characterized by (1) pain, bearing some relation to the time of ingestion of food as well as to the quality of food (2) by chronicity (3) by periodicity or the repetition of symptoms day after day during the symptom-producing period of the ulcer. The complex of chronicity and the periodicity of attacks with pain or distress repeated uniformly day after day during the attack and bearing a fairly definite relation to food intake and control is of primary importance in the diagnosis of 88 per cent of cases of uncomplicated peptic ulcer.

If an ulcer is situated on the lesser curvature near the cardiac end the symptoms are different than when located at the pylorus or in the duodenum. The symptoms of ulcer near the cardiac end will be those of pain, shortly after eating, with periodicity in its production, with vomiting of partly digested food, with blood in the vomitus, with a progressive emaciation because the patient does not retain his food. With ulcers involving the pylorus there is soon induced relative pyloric stenosis from spasm and secondary pyloric stenosis from inflammation and later the vomiting of large quantities of fermented gastric remnants. In the pyloric type of ulcer there is, as a rule, a loss of weight from insufficient nourishment and secondarily a cachexia from absorption of fermented and putrefying gastric content. Quite distinct from these two types is that of the duodenal ulcer where the patient is ordinarily a well nourished man with marked appetite for food and who informs you that "if he could eat all of the time he never would have a bit of pain."

We are in full accord with Moynihan that "persistent recurrent hyperchlorhydria is duodenal ulcer." In gall bladder disease pain and discomfort usually come on with eating, while in duodenal ulcer the pain is relieved by eating.

When an ulcer begins to perforate you have the reaction of the adjacent peritoneum with exudation and have in greater or lesser degree a localized peritonitis. The moment that this occurs the pain becomes constant and loses its periodicity. In very chronic cases if the history suggests that the patient had originally a duodenal ulcer one does not necessarily suspect the onset of malignancy, as the uniform history from every clinic is of the rarity of malignancy ingrafted upon duodenal ulcer. If however, this history leads us suspect gastric ulcer one would be inclined to feel that there was a possibility of

malignancy being ingrafted upon a chronic ulcer. An ulcer complex that loses its periodic character makes one suspicious of the development of cancer or perforation.

In considering carcinoma of the stomach it may be stated that cancer makes its presence known only when ulceration occurs or when there is an interference with the motor function of the stomach. The history is of most value in suggesting or arousing the suspicion of malignancy. There is however, no isolated or significant sign or symptom upon which the diagnosis of early cancer can be predicted. In general, carcinoma of the stomach manifests itself early only by mechanical factors and only later by chemical changes. Cachexia is one of the most prominent symptoms of malignancy, being present in about 80 per cent of diagnosed carcinoma. A palpable tumor exists in 58 per cent of cases, food remnants in 65 per cent of cases and vomiting in about 80 per cent of cases. However, at the time one most desires to operate for carcinoma of the stomach there is no pathognomonic sign of cancer present. X-ray examination gives us the best means of arriving at the operability of a particular case. The chemical examination of stomach contents is not of much value.

If there is any symptom which stands out as between ulcer and cancer it is the known presence of periodicity of symptoms in ulcer and its absence in cancer. Periodicity is present in about 88 per cent of ulcers and is absent in 99 per cent of cases when that ulcer becomes malignant.

Cancer of the stomach occurs in three clinical groups: (1) the man who is perfectly well, who has an athletic stomach and who has never had any previous gastric distress. There comes into his history an abrupt sudden development of gastric distress. His symptoms suggest an acute ulcer of the stomach, with hemorrhage, but at the end of three or four weeks the man has lost physically beyond what would be expected of a simple ulcer. His anemia has become more pronounced, with a distaste or aversion for food, and finally from the anemia, emaciation and beginning cachexia the diagnosis of rapidly growing carcinoma is made. This type constitutes about 30 per cent of all cancer cases and has an average duration of eight to ten months. The second group and by far the largest proportion, about 60 per cent, is represented by the patient who has a perfectly clear-cut history of chronic gastric ulcer extending over a period of years. A form of gastric distress characterized by periodic discomfort or pain usually bearing a distinct relationship to food ingestion and with some vomiting. His previous gastric history covers a period of eight to ten years with intermittent attacks of typical ulcer history. Finally there comes an attack from which he does not respond to the medi-



ical treatment that heretofore has proved beneficial. The pain becomes constant, marked distaste for food intervenes with particular aversion to meat, blood is constantly present in the stool and vomitus and he has an average duration of cancer symptoms approximating six months. The third group, of about 10 per cent, is represented by the patient who has a typical history of gastric trouble from which he nearly but never quite recovers, and after a variable period of time progressively but very slowly becomes worse, with a distinct distaste for food, and without any interruption progresses to a well-defined cachectic condition of malignancy.

### PHYSIOLOGIC GUIDES UNDERLYING OPERATIONS UPON THE STOMACH AND DUODENUM

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**F**EW subjects that are carefully studied in the medical course find as imperfect application in the daily practice of medicine as physiology. Too frequently physiologists are not conversant with the practice of medicine, and we as practitioners are unfamiliar with the practical side of physiology. Physiology, so often kept apart as a laboratory study and taught by men unfamiliar with the clinic, misses the needed active correlation with the practice of medicine. As surgeons, we are driven to the study of anatomy to avoid criticism and disaster, and yet we may practice with a reputation for efficiency and skill, although we daily break well established physiologic rules. We may, through ignorance, give to patients after serious abdominal operations, meat-broths, acidulated drinks and other foods that increase peristalsis, gastric acidity and the flow of bile and pancreatic juice, although we earnestly desire to reduce all these factors. We may let a patient sit up with a ruptured varix of the leg and lower the head for cerebral hemorrhage, we may give strychnine and alcohol for shock, atropine for opium poisoning, morphine for the delirium of uremia, and produce respiratory failure by apomorphine in cases of asthenic alcoholism, we may further embarrass the renal function by using quantities of salt solution and turpentine enemas in renal suppression, accentuate thyreo-toxicosis by a proteid diet, by the use of iodine in our preoperative treatment and adrenalin in our solution for local anesthesia, we may destroy the easy induction of ether anesthesia by the repeated admonition to "take deep breaths," and cause reflex asphyxia and cardiac arrest during the operation by swabbing the pharynx, we may unwittingly increase hyperchlorhydria by giving small doses of alkalis

directly after meals, and may let our patients sink from regurgitant vomiting after gastroenterostomy by delay in giving solid food, we may think that peptonized milk and egg enemas nourish our patients and that high enemas really are different from low enemas, and that calomels and salines are safe in acute appendicitis, we may show in a multitude of ways, of which these are only a few examples, an ignorance of physiologic processes and reactions, and yet be accounted skilled practitioners or thoroughly trustworthy surgeons. Our preceptors and professors made similar errors, and our patients or professional associates who would hold us to account for procrastinating in a case of purulent osteomyelitis or strangulated hernia, or for ligating the femoral artery for the saphenous vein do not recognize our physiologic blunders. Although many physiologic problems are yet unsolved and many half truths are preached with a show of conviction, it behooves us to square our practice with the present physiologic light, and a particularly fertile field is the surgery of the upper abdomen.

A number of points in relation to the preparation of food for digestion by the stomach are worthy of review. The stomach has a J shape, the greater portion being vertical and chiefly devoted to the storage of food, the lower portion of the J being the grinding, mixing, acidulating, peptonizing portion. Food entering the organ is stacked up, as it were, in layers, the food first taken resting along the greater curvature near the pylorus, the food last taken occupying the fundus and the vicinity of the cardia. These layers of food vary in reaction as they do with admixture of the gastric juice. The mucous cells of the pyloric antrum secrete a faintly alkaline mucus, the glands of the prepyloric area, pepsin and hydrochloric acid, while the mucous membrane of the fundus and cardia is largely free from the parietal acid secreting cells. As the layers of food are not intimately churned or mixed together, the food last taken, lying near the cardia, remains for a considerable time alkaline from the admixed saliva, and ptyalin may continue to act upon the starches in this zone of the stomach for twenty minutes or more after the ingestion—although the food kneaded by the peristaltic waves in the prepyloric region has become distinctly acid. Thus, if a tube could be accurately introduced to the different parts of the stomach twenty minutes after a meal, alkaline contents might be withdrawn from near the cardia; faintly acid contents from near the fundus, and very acid contents from the antrum. Again, two and one-half hours after a meal, distinctly acid contents might be withdrawn from the fundus and contents alkaline from the normal regurgitation of bile and pancreatic juice into the stomach from the antrum. At any time, ingested, non-coagulable liquids might not be re-

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4, 1921.

covered, as these thus tend to pass rapidly along the lesser curvature of the stomach into the intestine. Thus water promptly passes out of the stomach and the normal curdling of milk by the gastric juice is evidently in part designed to insure the proper retention of the liquid in the stomach.

Food enters the stomach teeming with bacteria from the mouth and other sources, it leaves the stomach, after having been practically sterilized by the hydrochloric acid of the gastric juice. Thus, intestinal digestion starts unhampered by the advanced bacterial contamination of food that otherwise might be present and the normal fermentative actions are properly safeguarded. The action of the gastric ferments being over, the acid pepsin is destroyed by alkalinization in the duodenum. Pepsin does not become active until acidulated and once the acid pepsin is neutralized by an alkali, the ferment is permanently destroyed. This occurs in the first portion of the duodenum by a very interesting mechanism. The presence of acid contents near the outlet of the stomach causes the pylorus to open and the chyme is ejected in spurts into the duodenum (Canon). The contact of the acid fluid with the duodenum immediately produces a closure of the pylorus that is maintained until neutralization has occurred, while Oddi's muscle guarding the common bile duct relaxes and reflex contractions of the gall bladder occur. In the meantime the contact of the acid chyme with the cells of the duodenal mucosa leads to the formation of secretin which is promptly absorbed into the portal circulation and directly stimulates a free flow of bile and pancreatic juice. During this time the chyme is maintained in the first portion of the duodenum in part at least by the contraction of Oschner's muscle, which practically separates the first from the second portion of the duodenum, and is active even when the pylorus has been destroyed. Complete neutralization having occurred the pylorus again relaxes, another spurt of acid chyme occurs and the process is repeated. That the small intestine does not become over distended there is also the ileo-pyloric reflex which like the block system of our railroads, prevents dangerous traffic congestion and maintains pyloric closure until the distended block below, ending with the ileum has emptied through the ileo cecal valve. This reflex explains the gastric symptoms associated with pylorospasm so often noted in disease of the appendix, ileum and cecum.

The mucosa of the upper intestine maintains its integrity against the erosive chyme by the protective action of the bile and pancreatic juice. If the bile and pancreatic ducts be divided and united to a lower portion of the bowel, the duodenum usually ulcerates. In six out of seven dogs in which Ealto anastomosed the jejunum with

the stomach after diverting the duodenal fluids into the colon jejunal ulcers tending to perforation occurred. This marked tendency to ulceration when the bile and pancreatic juice are kept from the duodenum has seriously complicated efforts to develop a satisfactory two stage operation for the excision of the duodenum. Even the leakage of gastric juice into imperfectly protected portions of the bowel is often followed by ulceration. Pyloroplasty and gastroduodenostomy are rarely, if ever, followed by secondary duodenal ulcer, the duodenum having the best protection, but gastrojejunostomy is followed by secondary jejunal ulcer in at least two per cent of the cases, and when the anastomosis is made En Y after the plan of Roux, or with a long loop as in anterior gastroenterostomy, the tendency for ulceration in the poorly protected anastomotic loop is much greater. In other words the incidence of peptic ulcer in the intestine after anastomotic operations with the stomach is directly proportionate to lack of concentrated bile and pancreatic juice in the zone of anastomosis—ulceration being especially severe and tending to perforation when these fluids are entirely diverted from the anastomotic opening.

If the intestinal mucosa is protected from the erosive action of chyme by bile and pancreatic juice, to what degree, if any, do these fluids protect the mucosa of the stomach? From the older concept that bile and pancreatic juice in the stomach are abnormal and harmful, the fact that the entrance of these liquids into the stomach is a normal and necessary part of gastric digestion is being slowly appreciated. The completion of gastric digestion is marked by the relaxation of the pylorus and a reflux of alkaline bile and pancreatic juice into the stomach. Coming at the time the mucous lining of the antrum of the stomach is exposed to the greatest irritation from the acid concentration of the gastric juice, the neutralization and mucous coating by these alkaline fluids rest and protect the organ. There is normally supplied, therefore, about two hours after each meal fluids containing alkalis, mucus and perhaps other substances to reduce the irritation of the gastric mucosa. The entrance of bile into the stomach is also associated with cessation of motor activity,—it is the resting medium of the stomach. Indeed all of the bile may pass through the stomach and out through a gastroenterostomy opening without causing indigestion or nausea and we believe the entrance of bile into the stomach during nausea and vomiting to be a normal method of neutralizing the gastric contents and of protecting the irritated mucosa. After the walls of the stomach are well coated with bile, if there is no remaining cause the nausea ceases. The patient associates the vomiting of the nauseous bile with his relief and does not appreciate that the bile relieved the nausea.

and did not cause it. Pylorospasm increases gastric irritation by causing the retention of the irritating acid chyme and by preventing the influx of bile into the stomach, and thus favors hyperacidity and gastric erosion or ulcer, while, reversely, irritation about the pylorus from hyperacidity or ulcer provokes pylorospasm with intensification of the original irritation. Increased motility and an open pylorus on the other hand favor lower acid values in the stomach. Sippy has found that by the proper artificial neutralization of the gastric juice, pylorospasm or pyloric obstruction is relieved in about 85 per cent of the cases of ulcer. A vicious circle, difficult to break, may be set in motion by any one of the factors—hyperacidity, pylorospasm, retention, erosion or ulcer, which having started, produces the other conditions.

Peptic ulcer occurs for the most part in the areas most exposed to the most active chyme, being common in the first portion of the duodenum and antrum, rare in the fundus of the stomach and very rare below the ampulla of Vater. Operations for peptic ulcer show an efficiency proportionate to the ease of access of duodenal fluids to the ulcer afforded by the operation. Contrast the relative efficiency of excision, pyloroplasty, the Finney operation and gastro-enterostomy in the various types of ulcer. The operations that have stood the test of time like gastroenterostomy and the Finney operation are those that best permit duodenal fluids to reach the ulcer. But while ulcers of the antrum and duodenum, bathed by duodenal fluids, heal after these operations in about 85 per cent of the cases, the less accessible ulcers of the lesser curvature and fundus of the stomach give only about 35 per cent of recoveries from gastro-enterostomy. In duodenal ulcer, gastro-enterostomy is followed by healing of the ulcer, not because a more direct and dependent outlet to the stomach is afforded, for fluoroscopic and other studies show that the chyme continues in many cases to pass out through the pylorus, but because protective fluids from the jejunum enter through the new stoma and protect the ulcerated surface from the irritating gastric juice. The leakage of unneutralized acid chyme through the new opening is a source of danger, as it is the chief cause of jejunal ulcer, the most serious and important late complication of gastrojejunostomy. Ulcers of the stomach, not close to the pylorus, have remained difficult problems for surgical treatment. These ulcers fail to heal in many cases after gastroenterostomy because they lie outside the zone bathed by the protective duodenal fluids entering by the new stoma. What gastroenterostomy does in an indirect and somewhat uncertain manner we have endeavored to do directly and more simply by anastomosing the gall bladder with the ulcer bearing area, either adjacent to the ulcer or with the edges of the opening left after

excision of the ulcer. For certain perforated gastric or duodenal ulcers, we advocate that an opening made in the gall bladder be superimposed and carefully sutured over the perforation, the suture lines being placed far enough from the opening to be in fairly sound tissue. In this way, not only is the perforation corrected, but the flow of the bile may facilitate healing and prevent ulceration, while the lumen of the viscus is not constricted. Thus, in one simple operation as much is accomplished as is accomplished by a combined excision, suture and gastroenterostomy without their primary and late dangers.

After the excision of ulcers near the pylorus the anastomosis of the gall bladder in the pyloric ring has aided in maintaining a large pyloric opening.

After gastro-enterostomy and after cholecysto-gastrostomy, we do not believe that the bile entering the stomach is intimately mixed with the gastric contents, but rather that it spreads over the mucosa near its point of entrance and soon passes out of the pylorus. Patterson has shown that the gastric acidity and the percentage of chlorides are reduced after gastro-enterostomy, yet free hydrochloric acid may continue to be present in the stomach. We have found a reduction in the acidity of the gastric contents likewise after cholecysto-gastrostomy, although free hydrochloric acid may still be present. It has been asserted that because a small percentage of ulcers of the stomach are associated with the absence of free  $\text{HCl}$  in the gastric contents and because Dunn's experiments indicate that even the diversion of all of the bile and pancreatic juice into the stomach will not entirely overcome the gastric acidity that peptic ulcers are not healed by the neutralization of the gastric juices. Against this argument we would simply again call attention to the fact that the gastric contents are not homogeneous, and the test meal does not show the chemical character of the liquid film over the ulcer, while we do not know whether or not the ulcers associated with achlorhydria fall into the small percentage not healing under continuous contact with the duodenal fluids. It is very difficult to continuously and completely neutralize the acid chyme in the stomach as the chief cells respond to the presence of alkalis by secreting additional acid. It is rather an assumption to consider only the alkaline content of the complex duodenal fluids, as protecting against ulcer,—certainly the contained mucus is also protective and not unlikely other substances are also important in this regard. At any rate, there is sufficient evidence that the duodenal fluids favorably influence the healing of a large percentage of peptic ulcers.

The continued total loss of bile for months is followed by a dyscrasia in which, although the patient may seem well nourished and in fair

physical condition, he falls into shock and usually dies within a few days after an abdominal operation. It is perhaps safer to operate on a case of obstructive jaundice of several months' standing than on one who has for an equal time lost all of his bile through a cholecystostomy opening. For this reason in operating for gall stones or an infected gall bladder in a very old or very weak person where there is reason to suspect the presence of additional stones that may later obstruct the ducts, the safest operation is an internal drainage by an anastomosis between the gall bladder and the stomach or duodenum. This operation affords a by-pass, preventing obstruction of the biliary system and usually enables the external wound to be closed at once.

Certain biliary obstructions suddenly relieved, in the presence of infection, are followed by symptoms of acute cholemia and death. The condition is comparable to the acute vesical and renal engorgement and inflammation that follow the sudden complete evacuation of a greatly distended urinary bladder. In these cases, safety lies in the gradual relief of the obstruction. Take, for example, a patient who has been acutely ill for a week from a stone impacted in the neck of the gall bladder with purulent cholecystitis. A cholecystostomy is performed and the impacted stone dug from its bed with some traumatism. This is followed by an acute febrile reaction and the patient soon becomes semi-delirious or stuporous and dies within a few days, of an acute cholemia. This is by no means an invariable occurrence but it is sufficiently common to make us wonder if the patient could not have been saved by a simple initial drainage without the immediate removal of the stone. When we treated these very septic patients by a cholecystectomy some years ago our mortality in elderly people was from 17 to 27 per cent, as contrasted with a mortality for chronic cholecystitis of about 1 per cent. Instead of a cholecystectomy, we think these patients should be treated by a cholecystogastrostomy or cholecystoduodenostomy with a large drainage opening taking care to traumatize the infected gall bladder as little as possible not to curette the mucosa and, if the patient is extremely toxic, not even to remove the impacted stone. After the anastomosis the septic fluids and mucous sloughs will pass into the stomach, and the stone will have an opportunity to gradually work its way through the new opening with the least danger of acute cholemia from traumatism and the sudden release of biliary tension. Operations on the gall ducts in the acute obstruction of the common bile duct with Charcot's fever and the full evidence of severe infection have also had an excessive mortality. In such a case, if the operation cannot be deferred until the more acute symptoms have passed we think it much safer to do the more

superficial anastomotic operation of the gall bladder and not to traumatize or disturb the ducts, even though a secondary operation for the removal of stones may be necessary. Local anesthesia and a high right transverse incision are valuable in this operation.

In one case of Hanots cirrhosis with very chronic jaundice, the patient has remained practically free from symptoms for three years after a cholecysto duodenostomy.

For the cholecystogastrostomy, a longitudinal incision is made in the stomach from two to five centimeters in length two centimeters above the pylorus, parallel with and two centimeters below the lesser curvature, and the anastomosis carried out as for a gastro enterostomy without clamps. Two guide sutures are first introduced forming a transverse line well under the fundus of the gall bladder and a posterior continuous serous suture of 00 chromic catgut introduced. The gall bladder is opened and emptied on a line at least 1 cm. distant from the suture line, a corresponding opening in the stomach made, the edges of the openings united with continuous 00 chromic gut and finally the serous suture completed. At times a third row of sutures uniting the muscular layers is inserted. Unless the case is a very septic one the wound is closed without drainage, the patient being propped up and given no food or liquids by mouth for the first twenty-four hours. The convalescence is usually simpler and more rapid than after a cholecystostomy.

The influence of peritonealization upon the abdominal organs is important. Some portions of the alimentary tract cannot properly function unless freely movable in the general abdominal cavity, for other portions a fixed position largely without the cavity is essential for efficient function. The duodenum and ascending colon, for example, should be practically immobile and without a mesentery, while the jejunum requires ample mesenteric attachment and freedom. A mobile duodenum will produce symptoms as will an immobilized jejunum. In gastro-enterostomy let a part of the jejunum remain within the lesser peritoneal cavity and serious intestinal obstruction may follow, as it will from axial rotation of the bowel.

The ascending colon is the great standpipe for liquids in the abdomen. Here 80 per cent of the water of our food is absorbed. As Wm Mayo has said, "We eat with the jejunum and ileum and drink with the ascending colon." If this standpipe slumps down from poor attachment to the posterior abdominal wall, not only may the absorption of water be interfered with, but the heavy liquid laden tube drags through normal lines of attachment, upon the right kidney, the gall bladder and the upper duodenum giving rise to renal biliary or gastric symptoms. Appendectomy, nephropexy, chol-

ecystomy, pyloroplasty, will not relieve symptoms originating in a ptosed cecum and ascending colon, and Waugh<sup>1</sup> has recently reported 180 cases in which the colon and not the part subjected to operation was at fault

Too often we are satisfied to operate in the area of symptoms, without troubling ourselves to find the originating, but distant, physiologic disturbance. Perhaps none of you have opened the peritoneum for the abdominal reflex in pneumonia, or have advised gastro-enterostomy when the gastric symptoms originated in a pulmonary tuberculosis, disease of the coronary arteries or locomotor ataxia, or have urged cholecystectomy for unrecognized myocardial attacks, or appendectomy for cecum mobile. Perhaps your operative statistics are not vitiated by a considerable morbidity due to such unrecognized physiologic relations. If so, you have my congratulations and admiration.

### SOME CONSIDERATIONS OF ACUTE ABDOMINAL CONDITIONS IN GYNECOLOGY

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THE acute emergencies which the gynecologist may meet, however he may desire to limit his practice, or the acute pelvic conditions which the general surgeon may encounter when he opens the abdomen, differ little if at all in their essential treatment from any acute abdominal condition.

The acute peritonitis which follows an overflow of pus from a pyosalpinx is identical with the acute peritonitis which follows the extension of infection from a ruptured appendix, or gall bladder. The collapse which results from a ruptured tubal pregnancy differs not materially from that which follows perforation of the stomach or intestines, and the essential features of the treatment are the same.

It should be noted, however, that a primary pelvic peritonitis *per se* does not present the same problem as abdominal peritonitis, since the former tends to remain localized on account of its location and also because it is most frequently due to gonococcus infection. On the other hand, in an abdominal infection the pus tends to gravitate toward the pelvis, which thus may become involved in a peritonitis which originated in the gall bladder, appendix or elsewhere.

It has been said that "the pelvic cavity is the pathological cess-pool of the abdomen," and the presence of a pelvic infection may be the out-post of a primary focus in the abdomen.

A discussion, therefore, of acute abdominal

emergencies in gynecology becomes properly a discussion of the treatment of acute peritonitis, whatever its focus, of collapse from hemorrhage whatever its origin, of exhaustion from advanced disease, as from carcinoma, whatever the organ involved.

*Acute Peritonitis*—Since pus gravitates toward the pelvis and the peritoneum lining the pelvic cavity absorbs less rapidly than that lining the upper portion of the abdominal cavity, Fowler's position should be maintained throughout, before operation, on the way to the operating room, in the operating room, and after operation. Drainage should be established at the lowest point. If the focus of infection is within the pelvis, vaginal drainage is preferred. The establishment of drainage alone may be done first, leaving the removal of the organ—ovaries, appendix, gall bladder, etc., until the immediate danger is passed and restoration has progressed to a point to make safe the larger operation. The operation should be under nitrous oxid-oxygen analgesia, not anesthesia, never ether. Vast hot packs covering the entire abdomen and extending well down over the sides speed the processes of repair and aid the liver in its prime function of neutralization of the acid by-products of the infection processes. From 2,000 to 4,000 cc or even more of physiologic sodium chloride solution given subcutaneously every twenty-four hours until the period of danger is past, supplies to the cells of the body their essential element and aids in the maintenance of their normal acid-alkali balance. If the case is grave, morphine given hypodermically until the respiratory rate is reduced to from 10 to 14 per minute relieves the organism of every activation excepting that required to combat the infection.

*Collapse from Hemorrhage*—Whatever the occasion for the loss of blood, whether a ruptured tubal pregnancy or a perforation of the stomach from ulcer, no better treatment can be offered than that upon which the experience with hemorrhage in the Great War set the final seal of approval—direct transfusion of blood, physiologic and mental rest, morphine with nitrous oxid analgesia and local anesthesia, and the briefest possible deft feather-edge operation to check the point of bleeding, a divided operation if the condition demands it, and always water by mouth, by rectum and especially by hypodermoclysis. The key to this situation is the maintenance of the normal amount of fluid in the cells, with sufficient elimination to assure the avoidance of any accumulation of acids. If the acid-alkali balance of the cells is assured the patient is safe.

<sup>1</sup> *British Journal of Surgery*, January, 1920.

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 4, 1921.

**Exhaustion from Prolonged Disease**—Although it may seem that such a condition is not properly classed among acute conditions, nevertheless the acute emergency will all too readily develop in the case of a patient exhausted by a protracted wasting disease such as advanced carcinoma for example, if the precautions are not taken in advance of the demand.

Exactly the same dicta apply here as after the condition of collapse is present. Transfusion, water, hygienic regimen, physiologic and mental rest, digitalis—if the heart muscle is failing, analgesia, minimum trauma, divided operation.

#### DECOMPRESSION IN THE PRESENCE OF EXHAUSTION AS ILLUSTRATED BY OPERATIONS UPON THE STOMACH, THE GALL BLADDER AND THE LARGE INTESTINE

##### *Cancer or Ulcer of the Stomach*

Two prime factors determine the result of operations on the stomach. The state of partial starvation and the degree of debility produced by the toxins of cancer or by hemorrhage. That starvation and advanced cancer produce marked intracellular changes in the brain has been shown by our researches, and it is common experience that these two conditions are extremely unfavorable for surgical operations.

The observation of the following cardinal points in gastric operations will reduce the mortality and provide the utmost protection to the patient.

1 The general condition of the patient is improved prior to operation by the administration of large quantities of sodium bicarbonate and glucose (5 per cent of each) by rectum, and if pyloric obstruction is marked, by the subcutaneous injection of much water.

2 If there is marked anemia give an adequate transfusion of blood.

3 If the risk is extremely grave, use nitrous oxid oxygen only to the extent of analgesia, depend mainly on local anesthesia. If the risk is fair, proceed as usual for abdominal operations.

4 Make an ample incision so that the operation may be taken to the stomach, and the stomach not brought out, unless it will come out easily without being pulled.

5 If there is a cancer like mass, and the hazard is great, then at the first operation make only a gastroenterostomy, otherwise complete the operation in one seance.

6 In case of a two stage operation, the resection may be made after the nutritional balance is well established usually in about a week.

7 In the second operation not only will the resection be made with little disturbance but as a result of the preliminary gastroenterostomy there will be a strong mobilization of the elements that make up local immunity against infection in the operative field.

8 In certain cases it is impossible to differentiate cancer from ulcer by the symptoms and history, by X-ray examination, by palpation, even by the microscope. Thus in four of our cases the entire mass that at the time of the first operation—gastroenterostomy—appeared to be cancer disappeared before the second operation so that the resection was not required. Had the entire operation been performed at the first stage not only would the hazard have been great, but a needless operation would have been performed.

9 In cases of pure cancer we have found in the second stage of the operation that the rest provided by the preliminary gastroenterostomy has reduced the size of the growth by diminishing the inflammatory tissue.

10 In the resection, if adhesions are found, divide them with a sharp knife. Make all dissections with a sharp knife.

11 Make a wide excision of the tumor.

12 Use round needles for suturing the stomach.

13 Avoid post-operative hemorrhage by using the cobbler stitch.

14 Tie the interrupted sutures lightly.

15 Should there be post-operative vomiting use the stomach-tube promptly.

16 Usually less post-operative disturbance is caused by the second and larger operation than by the first.

17 After the resection take especial precautions to keep the patient warm and to keep up a good nutritional and water balance. The two-stage operation gives splendid opportunity for this because the physiologic adjustment resulting from the gastroenterostomy occurs before the resection is made.

18 Convalescence is usually secure.

19 The post-operative care of ulcer cases should be controlled for many months.

##### *Acute Cholecystitis*

Cases of acute cholecystitis usually can be carried over the critical stage into a chronic stage, but when operation becomes necessary, in threatening acute cases, the following plan is strikingly successful.

Under only nitrous oxid oxygen—never supplementary ether—and with local anesthesia the abdominal wall is divided over the very middle of the most tender the most rigid area—not where the gall bladder anatomically ought to be, but where the center of infection is.

The peritoneum is opened most cautiously and an attempt made to divide it wholly and only within the area of adhesion. If adhesions extend down to the distended gall bladder they are separated with extreme caution until the gall bladder is reached so that an aspirating needle may be inserted the adhesions are separated only sufficiently to meet the absolute requirements for the establishment of drainage. As soon as the

gall bladder is opened (we are now discussing a fulminant acute case) a tube is inserted and nothing more is done surgically. Around this tube a quantity of iodoform gauze is lightly packed, after which large pieces of gauze are inserted around all the sides of the short abdominal incision. No stitches are used provided the incision is short and the gauze packing adequate. As a result the infection collapses, and a rapid convalescence follows. After all the acute symptoms have subsided, the temperature has remained long normal, and the patient has been in good condition for a sufficiently long period, then a cholecystectomy is performed.

If conditions are favorable then of course the operation is completed in one seance.

#### *Resection of the Large or Small Intestines.*

Gangrene resulting from acute intestinal obstruction and the presence of cancer are the two conditions for the relief of which a resection of the intestines is most frequently indicated. Whatever the condition, the first step is an exploration for the purpose of planning the operation and developing the operative field.

First an ample abdominal incision is made under complete local blocking with novocain, for whatever condition may be found, the muscles of the abdominal wall will then be relaxed, the exploration will be facilitated, and the use of gauze pads will be reduced to a minimum.

The preliminary exploration will invariably cause a certain amount of trauma in the unblocked territory, especially in the presence of intestinal obstruction. In such a case enough ether should be added to the nitrous oxid-oxygen to ensure complete relaxation until the completion of the exploration and of the development of the operative field. If the general condition is poor, then a two-stage operation may be required. Moynihan's plan of dividing the peritoneal attachment of the colon is most useful, as this mobilizes the colon to a great degree, and permits easy handling with minimum manipulation.

The following are especially important points to be observed in performing an associated resection of the intestines:

- 1 Use silk sutures
- 2 Use round needles
- 3 If there is plenty of room, close the divided ends and make a lateral anastomosis
- 4 The second choice is end-to-side anastomosis
- 5 The last choice is end-to-end anastomosis
- 6 If anatomically feasible, protect the suture line with omentum
- 7 In very grave cases perform the operation in two stages. In the first stage merely bring out the tumor, cut it away between the clamps,

and establish a lateral anastomosis by inserting forceps in each end, complete the operation in a second stage after the physiologic balance has been established.

8 Relief from obstruction is the first consideration.

9 The newer methods of controlling infection will minimize that danger.

In all cases of cancer of the rectum a two-stage operation is performed. In the first operation under anociation, the incision is so placed as to allow complete information regarding the local extent and also the dissemination of the cancer to other parts, especially to the liver. If the case is operable, a Littlewood artificial anus is made, and the operative field is surrounded with gauze lightly impregnated with iodoform. These procedures involve a light and a short operation. After the physiologic action of the artificial anus is established and the patient's condition is satisfactory, usually within four days, then the excision of the cancer is made. Since the first operation, usually under analgesia, has caused but little disturbance, the patient looks forward to the second with relative equanimity.

The surgeon, too, may anticipate the second stage with equanimity, because of the many safeguards he is able to offer, principal among which are the following:

- 1 The iodoform gauze which mobilizes a strong defense against infection
- 2 The improved methods of combating infection and promoting the healing of wounds which have been evolved in war surgery
- 3 The control of shock
- 4 The established, functioning anus, by which the new wound is completely protected from feces
- 5 The continued, unhampered nutrition
- 6 The resort to blood transfusion if anemia, or exhaustion, or hemorrhage wears down too much the resistance of the patient
- 7 The promotion of the welfare of these cases of tardy repair by a dietetic and hygienic regimen similar to that for tuberculosis—forced feeding and fresh air in abundance.

The employment of the measures described above in acute abdominal operations has made possible twenty-two operations for appendicitis with spreading general *peritonitis*, with but one death, and has reduced the mortality of operations for other acute abdominal conditions to

- 15% in operations on the stomach
- 21% in operations on the gall-bladder and common duct
- 18% in operations for cancer of the rectum and colon

## THE ACCOMPLISHMENTS OF INTRACRANIAL SURGERY\*

By CHARLES H. FRAZIER M.D., Sc.D.,  
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BUT a few years ago scant recognition was given to Neurological Surgery as a field worthy of the time and energy of busy able men. The young aspirants to surgical honors looked up to the skilled abdominal surgeon, particularly if he held a title of "Professor of Abdominal Surgery," as his ideal. Even though Horsley, the pioneer in the field of neurological surgery, had blazed a way many years ago, surgeons generally looked askance at the neurosurgeon, and a spirit of pessimism prevailed as to the possibility of attainment in this field. And so at the outlook of the World War you could count on the fingers of one hand those who acknowledged exclusive interest in the surgery of the nervous system. The Surgeon General's Office, recognizing the need at the front of surgeons trained to deal with injuries of head and spine, organized military courses in neurosurgery, and overseas there were at the front special teams for head injuries and at the rear head centres for their assemblage and study. Not altogether, perhaps, but in large measure as a result of the recognition of neurosurgery as a special field in military circles and partly because experience in this branch aroused the interest of many medical officers while in active service, we find today a considerable group of younger surgeons devoting themselves to neurosurgical problems—a sufficient number to justify an organization of their efforts in a society of neurological surgeons just entering the second year of its existence.

As a heritage of the war, but little has been contributed of practical value in the solution of problems that pertain to the surgical treatment of those lesions of the nervous system which confront us in civil life. There are some who because of its usefulness and advantage in dealing with gunshot wounds of the head, now advocate local anesthesia in cranial explorations and procedures, but what I have seen of it in other clinics has left me with anything but a pleasant impression. While one can open the skull painlessly under a local anesthetic, the long tedious intracranial ordeals cannot be carried out under local anesthesia with any consideration for the patient's comfort. The practice is inhumane, inconsiderate, and should be deprecated.

Because of the prevalence of cranial defects after the damage to the skull by bullet and shrapnel wounds and after the removal of sections of the skull en bloc in the debridement

technic, operations for the repair of defects were by far the most common in the reconstruction period. In surgical literature there has been a surfeit of articles dealing with this topic, as though it were a novel experience. No doubt it was to many, but for many years previous to the war there were cranial defects to be repaired and after trying out the various suggestions that might be said to be war-bred, recommending grafts of cartilage, of rib, tibia and scapula, I have returned to my original technic of repairing defects with a graft composed of the pericranium and a shell of the outer table of the skull. I recommend it to you as fulfilling all the essential requirements and as invariably satisfactory.

The mortality of brain abscess is still much higher than it should be. To be sure the responsibility in the majority of cases rests with the otologist because of the frequency of middle ear and mastoid infections is the exciting cause. Consequently the majority of operations for brain abscess are performed by the ear specialist. The two factors, predominant as causes of failure, are difficulty of localization and a secondary meningitis. As to the former I believe we may hope for accurate localization and ultimate drainage in a larger percentage of cases from two sources, (1) by a more intensive study of the signs of disturbed brain function together with a more intimate knowledge of the anatomy of the brain, and (2) by a statistical study from case reports in large numbers wherever the location of the abscess has been accurately described. I cannot help but feel that in abscesses of otitic origin and these comprehend 75 per cent of the total, there must be a fairly constant venue of infection and a fairly constant seat of the ultimate abscess. If not one there may be two, or even three, favorite sites, the geography of which could be so accurately mapped that specific directions might be prescribed for points of entrance, direction and penetration of the exploring needle.

In the chronological history the long periods of latency often throw one off his guard. I may relate as an example of this a patient who sustained a compound fracture of the frontal bone with penetration of the frontal sinus the dura and brain. The patient was discharged from the hospital one month after the injury, and subsequent to that had been under observation at intervals. There was at no time a suggestion of trouble brewing when one evening three months after the accident, she suddenly fell in a stupor. She was brought at once to the hospital and an exploration through the site of the original injury discovered an abscess of the frontal lobe 3 cm. beneath the cortex. At least an ounce of pus was evacuated the



patient immediately recovered consciousness and enjoyed an uneventful convalescence

I have been much impressed with a contribution from the pen of Le Maitre (*Revue de Chirurgie* Nos 7 and 8) to the surgical management of brain abscess. The method appealed to me because of its rationale in the preventing of meningitis, and because in the five consecutive cases in which it was applied the patients recovered—a very praiseworthy record. After the location of the abscess is revealed with the exploring needle, Le Maitre introduces a drainage tube of the smallest calibre and allows this to remain in situ for 24 to 48 hours, by which time the subarachnoid space about the drainage tract has been walled off by adhesions and an effective barrier established against a spreading meningitis. After that, at 24-hour intervals, a larger tube is substituted until one of adequate calibre is in service. The method appeals to one as having merit, and I venture to submit it to your consideration.

The pathological disturbances of the pituitary body give rise to clinical syndromes more varied in their expression than those resulting from disease of any other organ or gland. But in the final analysis the indications for surgical interference are disturbances of vision and headache, both pressure phenomena. The disturbances of function peculiar to the pituitary gland that express themselves in their effect upon growth, upon accession of weight and the like, are not favorably influenced by surgical procedures. In over 90 per cent of cases the patient finds his way to the neurosurgical clinic because of failing vision, and it is unfortunate that in so large a percentage of cases operation is so long deferred. In looking over my records I find that in 45 per cent the patients were totally blind, or practically so, in one eye, and in 6 per cent of the remaining there was only light perception in the other eye. And yet, in reviewing the histories of these cases one finds that there were often warnings that should have aroused suspicion three, four, five, and in some cases, ten years before.

The practical problem for the neurosurgeon is how best to restore vision or to conserve what vision the patient may have. Controversial views have been expressed and contentions made as to the transphenoidal and the transfrontal approach. In favor of the transphenoidal route is the comparative simplicity of the procedure, the low mortality and the immediate improvement in vision that follows in the majority of cases. Within the week I have carried out this operation in a patient who was totally blind in one eye and had a complete hemianopsia in the other. By the following morning his field of vision in the hemianopic

eye was normal, and this is not an unusual sequence of events.

In favor of the transfrontal route there is this incontrovertible fact, that before the operation one cannot determine with any certainty how far the lesion may have extended beyond the sella contents, nor can one distinguish a primary intrasellar lesion from one secondary to a primary suprasellar growth. Later on I will show illustrations of these primary suprasellar lesions that could not have been determined by X-ray or other studies until the lesion was exposed. For this reason the transfrontal route is advocated.

File No 26030 male, aged 61 years, was admitted to the Neurosurgical Clinic of the University Hospital January, 1919, with evidences of dyspituitarism, including accession in weight, increase in size of hands and feet, somnolence and a typical bitemporal hemianopsia. The Roentgen ray picture was that characteristic of an intrasellar lesion. Transfrontal exploration revealed a primary endothelioma of the sheath of the optic nerve and a secondary hyperplasia of the pituitary body. The latter could have accounted for all the physical findings, and had the operation not been by the transfrontal route the primary endothelioma would not have been discovered.

After weighing the merits of these two approaches and taking into consideration the relation of risk to immediate result, I have finally adopted the transphenoidal route as the first step in the surgical plan of treatment. In this decision I have been influenced partly by the favorable action of radium and X-rays, which we now employ routinely in the after treatment. There is accumulating what appears to be unquestionable evidence of the favorable influence of radium and X-rays upon certain pituitary lesions. Under my own observation is a series of eight cases. In the first of the series the treatment was inaugurated in 1917, upon the appearance of recurrent symptoms following a sella decompression. The recurrent symptoms subsided and the patient has continued symptom free.

When, despite a sella decompression, combined with X-rays and radium the visual disturbances recur and sight is threatened, I then resort to the transfrontal approach and exploration. The transphenoidal approach has been facilitated to a remarkable degree by the introduction of a perfect plan of direct illumination. The head mirror or the head light has many disadvantages in this operation. The reflection of the projected light from the sides of the long bladed nasal speculum tries the eyes of the operator. The illuminated retractor I have found so helpful in work upon the Gasserian ganglion suggested a similar system of illumination in these deep endonasal operations.

A small incandescent lamp on a carrier at the extremity of the bivalve speculum now gives perfect illumination of the field of operation at all times

No doubt as time goes on the mortality for the transphenoidal operation will be gradually reduced, judging from my own experience of the past six years, in the period 1914-1917 there were four deaths, and in the years 1918-1921 there have been none. Since the adoption of this general scheme I find that the proportion of transphenoidal to transfrontal operations has been in the ratio of four to one.

The increasing frequency of major trigeminal neuralgia interests us. Not only does it seem to be more prevalent, judging from the constantly increasing number of cases that come to the clinic (I now have in my files notes of 554 cases), but it is seen more often in patients under forty. So nearly perfect is the technic of the radical operation for its relief that our attention and study have been directed to other channels, and particularly to the typical forms of neuralgia within the zone of the trigeminal distribution. It is important, of course that an accurate diagnosis be made before the radical operation is undertaken otherwise the results will be disappointing to the patient and embarrassing to the surgeon. But the clinical pictures of major trigeminal neuralgia is readily recognized so that mistakes in diagnosis are no longer permissible. There remain, however, not a few cases without evidence of any infective lesion, such as dental sepsis or sinusitis, or herpes, and with no evidence of an intracranial growth involving the trigeminal tract who present certain pain phenomena quite different in expression and distribution from the major trigeminal type, and yet of great intensity. The following is a case in point.

File No 4650. T. E. C. Admitted to the Neurosurgical Clinic of the University Hospital May 4, 1909, complaining of paroxysmal attacks of pain in lower and upper jaw and temporal region. The radical operation was performed following which the patient made an uncomplicated recovery and was discharged from the hospital free from pain.

January 1921, the patient was readmitted, complaining of pain phenomena, wholly different from those of the original attack, the sharp lancinating paroxysms of trigeminal neuralgia. He described them as a dull aching, burning pain throbbing like a boil in the region of the maxilla bone, as soreness about the eye and tenderness of the cheek. An examination revealed absolute anesthesia in the entire distribution of the trigeminal nerve. An application of cocaine was made to the middle turbinate bone just opposite the sphenopalatine ganglion, and the patient immediately observed that the pain and

burning sensation had entirely disappeared, volunteering the information that he had not felt so well for years.

The significance of this is difficult of interpretation unless one should attribute the relief to the effect of the cocaine on the sympathetic connections of sphenopalatine ganglion.

In the majority of these atypical cases pain is referred to the cheek, the temple and the orbit, in some the pain is temporarily relieved by cocaineization of the sphenopalatine ganglion, and in some it is not. In some alcoholic injection of the second division gives a measure of relief, in some not. The origin is so obscure and the plan of treatment not readily formulated. When the pain is relieved by cocaineization of the maxilla or sphenopalatine ganglion, the indications for the excision of the ganglion would seem undisputed. This is a difficult surgical problem, but I have about elaborated a technic which I hope will make this ganglion as accessible as the Gasserian ganglion.

But it is not improbable that the pain of these obscure neuralgias may have its origin in the sympathetic system. Our experience during the war with the painful lesions of the extremities, the so-called causalgias, and their relation to the sympathetic system should direct our attention to the sympathetic system in those painful syndromes of the face that are evidently not of trigeminal origin. This offers a fruitful field for investigation.

Our experience with the radical operation for trigeminal neuralgia began twenty years ago, when in 1901 avulsion of the sensory root as proposed by Spiller was first deliberately undertaken. We have seen the mortality drop from 5 to 3.5 per cent, and finally to less than 1 per cent. There has been one operative death in the past eight years. We have at times practiced a subtotal resection of the root, leaving intact a single fasciculus on the inner aspect of the root when the ophthalmic division was not involved, we have developed a technic whereby the motor root can be conserved and not sacrificed, as in the past, and we have demonstrated the feasibility under appropriate circumstances of sacrificing the motor and conserving the sensory root.

The major problem of the neurological surgeon is the problem of tumors, major because the majority of patients in one's clinic are brain tumor cases major because of the gravity and complexity of the issues involved. One cannot discuss the surgery of brain tumors in general terms, the differences in location, differences in tumor types are such that surgical deductions appropriate for one group would not be appropriate for the other. The circumscribed endothelioma is as different in every respect from the glioma as the gastric ulcer is from the in-

filtrating carcinoma of the stomach wall. And so mass statistics as to operability, mortality, and results are confusing and meaningless. A "Surgical Classification," if universally adopted, would form the basis for statistical reports from various clinics and promulgate more intelligent and helpful discussion. Such a classification might divide brain tumors into the following groups:

- I *Pretentorial*
  - 1 Endotheliomata
  - 2 Gliomata
  - 3 Miscellaneous including benign tumors
- II *Subtentorial*
  - 1 Pontile angle tumors, not including acoustic tumors
  - 2 Acoustic tumors
  - 3 Tumors of the cerebellar hemisphere, including glioma and tuberculoma
  - 4 Tumors in the neighborhood of the vermis
- III *Primary Lesions*

The subcortical infiltrating glioma is in the great majority of instances an inoperable growth and often so even when it involves the cortex. The limitations of the growth are not defined and its complete extirpation is not feasible. Per contra, the endothelioma, taking its origin from the membranes with a well-defined capsule, often is the more readily exposed and its removal in toto a reasonable surgical undertaking. Furthermore, the risks attending mere exploration vary tremendously in these two radically different tumors. To illustrate, let me relate briefly two cases.

*Case I*—File No 38091. M. P., age 41, was under observation in the clinic three years ago. The symptoms dated back only four months. The diagnosis of an occipital lobe tumor was based upon the presence of a right lateral hemianopsia, together with the signs of increased intracranial pressure, headache, vomiting and papilloedema. An exploratory craniotomy uncovered a well-encapsulated growth on the mesial surface of the occipital lobe taking its origin from the falx. It was readily removed, there were no postoperative complications, the patient recovered completely and has remained symptom free ever since.

*Case II*—File No 63916. Patient, aged 40 years, was admitted to the hospital for study and the symptoms pointed, as did the above, to a tumor of the occipital lobe. There was a right homonymous hemianopsia and other evidences of intracranial growth. An exploration similar in every respect to the former was carried out. There was no evidence of a growth involving the cortex, but a few c.c. of straw colored fluid were evacuated from what was believed to be a cyst of a deep seated glioma. Of course no attempt at removal was made. The patient did not recover consciousness, and continued in a deep stupor until his death within twenty-four hours of the operation. This is not an exceptional

termination of operative undertakings in these subcortical gliomata. A result quite similar may follow a subtemporal decompression in similar lesions. As to the relative frequency of these two groups, there have been in my series of cranial explorations, when the tumor was exposed on the operating table, 60 per cent in the sarcoma-endothelioma group and 38 per cent in the glioma group.

A lower operative mortality and higher rate of satisfactorily removed growths may be anticipated only when the profession generally refer their patients in the incipient stage to the neurosurgical clinic. Too frequently are we confronted with the terminal stage of the lesion when conditions for operation are highly unfavorable and the possibility of complete recovery remote.

In early doubtful cases a subtemporal decompression will afford relief from subjective discomforts and may conserve vision. But there is always the possibility, and this is one of the advantages of decompression not fully realized, that we may be dealing with what has been, perhaps inappropriately, called a "pseudo tumor," and the subtemporal decompression alone eventuates in a complete recovery providing it is not too long delayed. As an example, let me cite the following case.

File No 1157. Male, age 20 years, was admitted to the Neurosurgical Clinic of the University Hospital, October, 1905. The existence of cerebellar tumor was surmised from the following: headache, nausea, vomiting, deafness in left ear, staggering gait, and a high grade papilloedema (O. D. 10 diopters, O. S. 9 diopters). A suboccipital decompression was performed, and at the last report, sixteen years after the operation, the patient was symptom free. This is but one of a number of others I might report, some of whom, unfortunately, are blind because of the advanced optic atrophy at the time of operation. Whatever the pathology may be, or however they may be classified, these cases occur sufficiently often to warrant one's emphasizing the importance of early decompression even when the lesion cannot be localized.

In recent years we have been led to take a more hopeful view of certain inoperable tumors from our observations of the effects of radium and X-ray. I cannot here go into the details of the twenty-four cases under observation. Suffice it to say that the results in some have been sufficiently encouraging to lead us to continue this research both in the clinic and in the laboratory.

The air ventriculogram, as proposed by Dandy, is one of the more recent additions to our methods of investigation and localization of brain lesions. In my hands it has not as yet been the means of determining the location of a growth, not ascertainable by other means, but it has been of

assistance in supplying information as to whether in a given case, the ventricles, one or both, are dilated or collapsed. This information may be of inestimable value under certain circumstances particularly when a ventricular puncture may be desirable, as it often is, to facilitate the intra cranial exploration.

After all the fundamental problem in the majority of cranial explorations is the relief of pressure. In conditions of extreme intracranial pressure the surgeon may hesitate reflecting a dural flap unless he is reasonably confident pressure may be reduced considerably by the withdrawal of cerebrospinal fluid, and for this purpose a ventricular puncture is much safer than a lumbar puncture.

Unless the surgeon is master of the situation under conditions of extreme pressure he may fail in many explorations to find the tumor or exploration may end disastrously. Whether, as has been proposed the intravenous injection of a saturated salt solution will prove not only safe and harmless but effective in relieving pressure is a problem now confronting us. In the five instances in which I have employed it the results have been disappointing, but further observation must be made before the method is condemned. There is no doubt that in the laboratory the process of dehydration which follows the injection reduces to an extraordinary degree the brain volume.

Skill in the administration of the anesthetic mastery of the intricate problems of intracranial pressure and the control of hemorrhage are the three safeguards to cranial explorations. The mechanics of the craniotomy are trivial in importance. I have found blood transfusion of the greatest service in securing a prompt reaction and in advancing convalescence. So much impressed have I been with its value that I am using it more and more frequently. In suitable subjects, autotransfusion may be employed. By that I mean the patient may be transfused with 500-600 cc of his own blood withdrawn the day before the operation, citrated and refrigerated.

# DEVELOPMENT OF PULSATING EXOPHTHALMOS IN A BLIND EYE. RESTORATION OF ALMOST NORMAL VISION FOLLOWING CURE OF EXOPHTHALMOS.\*

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**A** CAREFUL review of the literature on this subject fails to reveal any marked loss of vision in the proposed eye which was materially benefited by any method of cure of the exophthalmos. The vision in these eyes is practically always to some extent, affected. De

Schweinitz and Holloway, in their monograph, state that 'not more than 11 1/2% of all cases have retained normal vision.' The case reported in this paper is unique in several respects, but principally, in the fact that almost complete blindness was restored to nearly normal vision following ligation of the common carotid.

**Case Report.** W. K., driver, age 27, referred to me December 29, 1919, complaining of swelling of the left eye, and noise in the head accompanied by slight headache. He stated that about October 15, 1919 the left lower lid assumed a purplish hue, followed, in about two weeks, by a gradual swelling of the eye. No pain or discomfort until yesterday, when he experienced slight headache, and intermittent hissing sound in the head. No other subjective symptoms until this morning when he awoke with left frontal headache which radiated backward and with increase in intensity of head noise. First noticed poor vision in the left eye when, on its account, he was refused enlistment in the Regular Army in 1917, and was rejected from the Draft Army in the same year. He does not know whether this vision has changed any since 1917. Has never had similar trouble. Has never had any head injury or particular strain relating to present trouble. Admitted to Long Island College Hospital.

**Family History.** Has no bearing on present trouble.

**Previous Personal History.** Pneumonia at eight, no sequelae. Erysipelas about eight times first attack in 1907, last in 1913, always confined to nose, eyes and forehead, lasting about ten days each time. Until two months

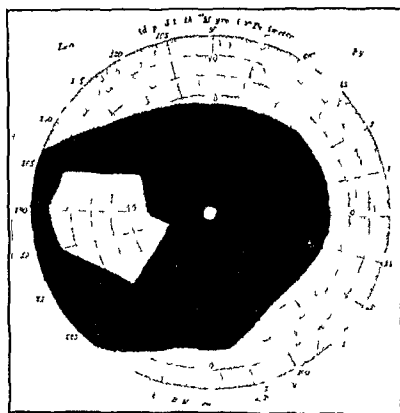


FIG 1—Approximate field taken December 29, 1919 Before operation

ago, "on drunk" two or three times a week for past two years Beer in large quantities, whiskey seldom

*Occupation* Past year and a half drove truck for an iron dealer, necessitating frequent lifting of heavy weights Previous to this drove paper box wagon

*Veneral* Chancre in 1911 Three weeks after appearance received one intramuscular injection of Salvarsan No other treatment No Wasserman

*Examination* VOD 20/20+2 50 $\odot$ + 50 $\times$ 180 =20/20 VOS fingers at four feet in extreme temporal field Field of vision normal in OD, in OS approximately as in Figure 1 The left eye was displaced forward 6 mm, and 2 mm downward Slight fullness of the upper and marked fullness of the lower lids There was a subcutaneous mass about one inch in length, one quarter inch wide, protruding downward and outward between eye ball and lower inner aspect of the orbit On palpation, this mass gave sensation of a varicosity, pulsated synchronously with radial, and could easily be replaced within the orbit Change in the position of the patient did not affect the size of this mass, nor of the exophthalmos Lid motions present, though sluggish Ocular motions normal with exception of slight limitation of extreme external rotation The sub-conjunctival, and deep scleral vessels were markedly distended and tortuous Pupils, OD 3 mm, OS 4 mm, regular, reactions normal Mediae clear Fundus OD normal OS disc slightly hyperemic, especially nasal half, margins indistinct, no swelling, retinal vessels engorged and tortuous, no hemorrhages There was no visible pulsation or tremor of the left eye It could be replaced in the orbit There was a slight, but distinct pulsation felt on pressing the eye directly back in the orbit Objective bruit heard only anteriorly within limits of the orbit Patient heard buzzing noise in the head, more marked on the right side

Passive congestion of the mucous membrane of the nose and throat, marked on left side Transillumination showed slightly increased shadow over left frontal No pus in nose at time of examination Ears negative

Three or four neck glands present on either side Epitrochlears were bean sized, and hard Heart reached 10 cm in fifth space No shock First sound covered by low pitched systolic bruit, transmitted fairly well to axilla, and heard loudest in third left interspace, two inches from midline P-2 definitely increased, and in the P-2 area systolic blow was audible, similar in character to one described before A-2 increased, and there was a delayed short systolic bruit in this area, higher in pitch than one found in pulmonary area Radial vessels showed no apparent change Possibly the neck vessels throbbed a little more than normal No Duroziez Fairly quick pistol shot

was heard Lung sounds were normal Splenic edge not palpable Abdomen negative

Patellar jerks were absent Knee jerks, Achilles and Plantar were present No clonus or Babinski Abdominals and cremasterics active Sensations to dull and needle point, feather, heat and cold, were apparently normal Pressure, deep and light, were well differentiated, and point of pressure easily localized No part of body seemed to show abnormal reaction to tests Toe differentiation and motion normal All position tests were accurate

Roentgenograms of chest, skull, orbits, and sinuses negative

*Blood Pressure* Right 124/80, left 118/76

*Blood Analysis.* RBC 4850000, WBC 16000; HGB 85%, Neut Poly 79%, Lymph Sml 12%, Lymph Lge 5%, Trans 4%

*Blood Chemistry* Urea N 20, Urea 428, Uric Ac 5.5, Sugar 80, Creatinin 1.4

*Serology* Negative on blood and spinal fluid before and after provocative Salvarsan

*Spinal Fluid* Normal pressure; globulin negative, 12 cells, colloidal gold curve flat After provocative Salvarsan, normal pressure, globulin positive, 10 cells, colloidal curve flat

On 1/4/20 the subjective bruit had so increased as to prevent sleep Exophthalmos increased to 7.5 mm. Internal angular vein prominent Bruit obliterated on compression of left common carotid, at same time patient lost subjective bruit Objective bruit now heard over entire skull Under complete rest in bed, iodides, mercury rubs, sedatives, intermittent compression of carotid (compression of angular vein of no result), the objective and subjective signs slowly increased

1/11/20 Exophthalmos 8-mm

On 1/16/20 under gas-ether-oxygen anesthesia, Dr J Sherman Wight exposed the left carotid vessels Ligation of the internal carotid caused diminution of pulsation but no cessation Just below the bifurcation, the common carotid was ligated in two places and the artery completely severed between the ligatures At the time of ligation, there was sudden divergence of the left eye, almost to limit of external rotation, there was immediate blanching of subconjunctival vessels, the pulsation of the protruding mass and of the eye ball ceased, immediate blanching of the retinal circulation and of the disc, with almost as sudden restoration Patient recovered from anesthetic sufficiently, ten minutes after skin sutures, to say that all noise in head had stopped No objective bruit Two and a half hours later the fullness beneath the eye had almost all disappeared, very much less fullness of the conjunctival vessels, exophthalmos 4 mm, retinal vessels smaller, divergence disappeared, slight numbness of right face

1/17/20 Marked diminution in size of retinal vessels Tingling sensation in right hand

Patient refused to stay in recumbent position;

and insisted, on 1/18/20, in getting out of bed I hesitated in using restraint, and chose what I considered the lesser of two evils in permitting him to sit up out of bed. Next day I found the patient playing with the children on the roof. Surprisingly, no ill effects were noticed. A complete neurological examination at this time showed no abnormalities, with the exception of the absent patellar jerks noticed on admission.

1/25/20 Exophthalmos 1 mm, ocular motions normal, slight fullness under the eye, but no mass, conjunctival vessels normal disc still hyperemic, less fullness of retinal veins but no change in the tortuosity. Bruit absent. Neck wound healed by primary intention. Discharged from hospital.

Patient was seen twice weekly after leaving the hospital, and on 3/11/20 the fundus appeared normal. VOS  $20/100+3$  50  $\odot +100 \times 180 = 20/30$ . The visual field, as shown in Figure 2

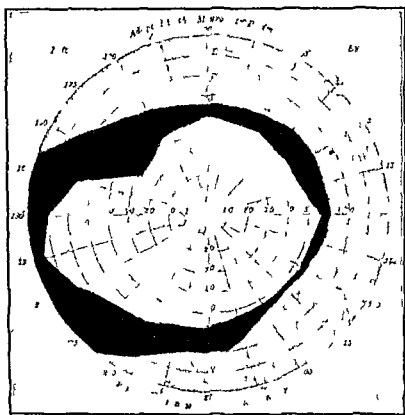


FIG 2—Field of March 11 1920 After operation.

4/21/20 Condition about the same exophthalmos measuring about  $\frac{1}{2}$  mm. Patient has been taking iodides and mercury rubs since leaving the hospital, and has returned to job of truck driving.

On 5/5/20, patient rolled off truck, became unconscious and died in a few hours in Bellevue Hospital. No autopsy. Medical Examiner's cause of death was cerebral hemorrhage.

In seeking a classification for this case, I do not see how it can be placed in either of the spontaneous traumatic, or idiopathic groups. Certainly, in this case we have a decided case of aneurysm. Leukemic infection in this case is demonstrated not by positive serology but conclusively by the history, and the clinical picture of aortic and aneurysm. With this weakened aneurysmal wall we have what might be called a 'chronic traumatism' in the form

of the repeated strain caused by the constant lifting of heavy weights.

Interesting points in this case are

1 History of practical blindness in the proposed eye dating back two years, with recovery of nearly normal vision following cure of exophthalmos.

2 Sudden death nearly four months after operation.

3 Slight involvement of the sixth nerve before, and sudden divergence immediately after ligation of the common carotid.

4 Remarkable general recovery after ligation of the carotid.

5 Negative serology.

It has been my experience that negative serology, while not the rule, is nevertheless not uncommon in ocular disease. I have also found, as in this case, that a definite clinical case of lues is not always substantiated by positive serology, even after provocative measures have been taken.

Such a mild convalescence, as was present, is the exception after ligation of the common carotid. No steps were taken to accustom the patient to such a radical disturbance of the cerebral circulation as is caused by interruption of the carotid flow. Nothing could be more abrupt and permanent than severance of the artery, and yet the patient was out of bed within forty-eight hours after the operation. Pains were taken to secure a thorough detailed neurological examination both before and after the ligation. The only changes noted were the transient, slight numbness of the right face following operation, and the tingling sensation in the right hand on the day following.

Involvement of the sixth nerve must have been only of short duration since evidence of this complication was found only in the slight lag in extreme external rotation. True, this may have been caused by irritative involvement of the third nerve. However, taken in conjunction with the sudden divergence occurring at the time of ligation, we must consider the slight deficiency in external rotation, as due to pressure on the sixth nerve, the sudden divergence as the over action of an inhibited nerve after the inhibition had been removed. It is interesting to note, that ocular muscular balance was restored in about two and a half hours.

Death ensued rather suddenly, and without previous symptomatology that might lead one to suspect such an outcome. I had last seen the patient thirteen days before, and certainly found nothing to lead me to suspect his ending. Of course, without this thought in mind my examination as to life or death was very deficient. From an eye witness, I learned that this man was standing on his truck, behind the seat. The truck was at a standstill alongside the curb. The patient suddenly toppled over backward and toward the right and rolled off the truck on the street. He was not immediately unconscious, but

able to give his name and address to a police officer, and insist that he be taken home rather than to a hospital. He shortly became comatose, and died soon after admission to the hospital. The objections of his family prevented an autopsy. Cerebral hemorrhage was most probably the cause of death,—hemorrhage from rupture of the aneurysm.

Let us now consider the probable location of the aneurysm. Aneurysm of the orbital vessels is excluded, I believe, by the fact that compression of the internal angular vein produced no amelioration of symptoms. It is designated as intracranial by the fact, that at the time of ligation of the common carotid, there occurred divergence of the eye, which shortly disappeared. In the orbit, the only large vessel with which the sixth nerve has any relation, is the ophthalmic vein, which lies inferior and to the inner side of the nerve. It is at least improbable that any condition of this vein would cause sufficient pressure on the nerve to impede its conducting power.

We know that in its course through the cavernous sinus, the sixth nerve bears a very close relation to the internal carotid artery. It is readily seen that aneurysm in the sinus might inhibit the passing of impulses along this nerve. But will an aneurysm in the sinus cause any pressure on the optic nerve sufficient to inhibit its impulses, for undoubtedly there was inhibition of this nerve, at least?

Walker and Cushing,<sup>1</sup> in explaining the occurrence of binasal hemianopsia in cases of brain tumor, state, "An internal hydrocephalus with distension of the third ventricle crowds the optic nerves downward and outward against the carotid vessels which transversely indent the outer aspects of the nerves. In this way the uncrossed fasciculi to the temporal retina, and the laterally placed macular bundle as well, suffer from a mechanical pressure "block" in addition to the diffuse anatomical destruction of fibres throughout the nerve, in consequence of the contraction of the new tissue formation in the long standing choked disc." The same authors,<sup>2</sup> demonstrated that the optic disc may present the definite pallor of atrophy, and that perimetry may show even marked contraction, significant of atrophy, and yet histological study of the sectioned optic nerve may show little or no degeneration of the nerve fibres. The explanation offered being that a state of physiological block precedes actual fibre degeneration.

These authors in formulating the latter conclusions, were discussing cases of pituitary disease, in which there was direct pressure of the enlarged pituitary body on the chiasm, and in their studies of brain tumors, the pressure was exerted by the distended third ventricle against the optic nerves, and so pushing the optic nerves

against the carotid vessels. In our subject, we have the reverse, enlargement of the carotid vessel exerting pressure against the optic nerve.

The internal carotid only bears direct relation to the optic nerve as it (artery) pierces the dura in leaving the cavernous sinus, the nerve lying on the inner side of the artery. Here, the arterial relation to the sixth nerve is lost. The ophthalmic artery has its origin in the internal carotid at the point where the carotid leaves the cavernous sinus, and passes forward, below and to the outer side of the optic nerve. Here also, there is no relation to the sixth nerve.

I dwell on the relation of the optic nerve because it is certain in this case, that the only pathology which will account for the visual fields as shown in Figure 1, in comparison with Figure 2, would be, not neuritis or atrophy, but inhibition or block, caused by compression of the nerve fibres somewhere in their course. The only point at which an aneurysm would affect both optic and sixth nerves, would be where the internal carotid leaves the cavernous sinus, and therefore the aneurysm might either be of the internal carotid, or of the ophthalmic artery at its origin, or of both.

In this location the point of pressure on the optic nerve would be in its lower outer aspect. This would explain our field of Figure 1 as being originally a nasal hemianopsia, in which, as the pressure continued, more nerve fibres became involved to ultimately restrict the temporal field, all but the island of vision remaining.

I draw this inference from the articles quoted before. That nerve block may exist from six months to one year before the continued pressure would cause degenerative fibre changes of sufficient degree to give permanent visual field defect. If this inference be justified, and since the inference is drawn from the study of the effects of the constant pressure of more or less solid tumors on the chiasm, then the intermittent pulsatile pressure of an aneurysm on the optic nerve might cause nerve block at least as long as the continued pressure of a solid tumor before degenerative changes set in, and possibly longer.

In considering the occupation of this patient, and the fact that we have the history of blindness, sufficient to bar him from our armed forces, two years before the onset of exophthalmos, we may assume that during that period of occupation as driver of a paper box wagon, there was sufficient pressure of the aneurysm against the optic nerve to cause a certain degree of destruction of vision, and that this loss of vision remained at a standstill, say at the point of nasal hemianopsia, until the change from the paper industry to that of iron and steel. In the new position we have the added circulatory strain in the handling of heavier weights, resulting in an increase in the size of the aneurysm, and consequently an increase in pressure on the optic nerve. Further involve-

<sup>1</sup> *Arch. Ophth.*, Vol. XLII, No. 6, 1912.

<sup>2</sup> *Arch. Ophth.*, Vol. XLV, No. 5, 1916.

ment of the fibres set in, with increased defect in the visual field. At about this stage the aneurysm became large enough to impede the return venous flow from the eye, with the production of exophthalmos.

Ligation of the carotid caused enough change in the aneurysm to remove the obstruction to the venous return from the eye, and very likely, at the same time, released that pressure on the optic nerve, which had caused more 'block' of fibres than degeneration.

#### SUMMARY

Incipient pulsating exophthalmos about eight years after initial luetic sore.

Proptosis apparently 14 days after incipency progressed 8 mm in 74 days, receded  $7\frac{1}{2}$  mm in 9 days.

Subjective bruit 30 days after exophthalmos 44 days after incipency.

Objective bruit noted 31 days after exophthalmos, no doubt existed before, localized to orbit 7 days, then gradually over skull.

Restoration of vision and field 54 days after ligation.

Death 109 days after ligation.

#### DISCUSSION

DR BEN WITT KEY: I feel that we are greatly indebted to Dr Behn for the careful study and report of this most instructive case. I wish especially to congratulate him on his explanation of the anatomic relations, changes physiologic and pathologic so carefully noted as result of the mechanical process of aneurysmal pressure in this case.

The most interesting point in the case it seems to me, is the question of blindness in the left eye prior to December 29, 1919, and the duration of that blindness. The error of refraction in the proposed eye was greater than in the fellow eye, and it was brought to his notice only by examination for entrance to the Army in 1917. Dr Behn assumes that there was aneurysmal pressure causing this blindness two years previously and if this is true he has presented the first case of the kind in our literature. Of course it is well known that these cases show greatly reduced vision to almost loss of light perception with scotoma, temporal and concentric field loss and after ligation or occlusion of the common carotid artery below the bifurcation vision has returned to almost normal. Brazier in 1915 reports such a case of traumatic pulsating exophthalmos of right eye with vision of fingers at three feet and after slow occlusion by means of a Neff's clamp symptoms were relieved and vision returned to 20/25. Rutter also in 1915 reported a similar case. Vision=light perception only and restored to 9/10 after ligation of the common carotid. Similar cases have been reported by Maher in 1914, Cunningham in 1914, Zentmeyer in 1916 and Kruss in 1916. My experience is limited to three cases the first I had the privilege of studying with Dr Gruening in 1912 and which

was relieved by ligation of the common carotid, which he himself performed, the bruit disappeared and vision was improved to almost normal. The second case was one which I reported before the New York Academy of Medicine in 1917, and which case was relieved after almost constant digital pressure exerted by the patient himself over a period of ten days and in which the bruit disappeared, the proptosis receded and vision was improved from 20/100 to 20/25. The third case was seen in 1918 and was a symptom of a most distressing head injury. This bruit was stopped by means of a clamp over the common carotid, but the result was not to be seen since death supervened as result of the shock of the injury.

These cases are interesting to study, but what can be done for them seems to me to be the important point. The ultimate near result of ligation of common carotid has frequently been only temporary relief or optic atrophy or death. Permanent cure over a reasonable length of time, one year, I have not been able to find in the literature, although apparently permanent results are obtained. This would seem to indicate that at best, pulsating exophthalmos, spontaneous or traumatic is usually premonitory of early death. I am inclined to prefer pressure (digital or clamp) occlusion of the carotid rather than ligation, because of the danger which seems reasonable to expect from a sudden and permanent derangement of the intra-cranial circulation. The treatment of these cases is not at all limited to that of relief of the exophthalmos, but it involves careful systemic analysis and care. In all of these cases we are confronted with a simple outline, but an exhaustive study of it.

#### I Investigation

- 1 Etiology and character of it
- 2 Thorough physical examination
- 3 Wassermann and urinalysis
- 4 Blood pressure
- 5 X-ray
- 6 What affects the bruit
  - a Posture
  - b Position of head
  - c Pressure on one or both carotids
- 7 Where bruit is heard
- 8 Dilatation of veins of face or orbit?
- 9 Ocular disturbances
  - a Motility
  - b Proptosis
  - c Vision
  - d Fundus

#### II Medication

- Bromides or other sedative
- Blood pressure control
- Specific
- Phlebotomy

#### III Gelatin (4%) injection intravenously (Balbueno)

#### IV Intermittent and continuous pressure to occlusion of common carotid

- 1 Neff Clamp (Brazier's case)
- 2 Digital (my case Maher and others)

#### V Ligation of common carotid as last resort optic atrophy and death reported having followed it in many instances (three or four days after ligation) Maher, Kimball, Morax and Ducamp, Coil and others



## BACTERIOLOGICAL STUDY

## ANIMAL EXPERIMENTATION FOR VIRULENCE

Case and history	Material cultured	Colony study Blood pour plates Streptococcus	Bile solubility	Carbohydrate Fermentation					R throat weight	Inoculation Intravenous Generation	Bleeding Hypodermically from Heart	Blood culture	Remarks	Autopsy
				L	D	M	R	S <sub>11</sub>						
No 1, M G Apparently normal tonsils Adenitic bronchitis	Cheesy like mass	Small to minute green zoned alpha type 1	Negative	+	±1	-	±1	+	1 Brown 2,000 gm	0 5cc 4 generation	1 5cc in 24 and 48 hours	Sterile	Animal was sickly 48 hours	Cultures from heart, liver, spleen and lungs did not reveal any streptococci
No 2, Dr F R Apparently normal tonsils Horse, dandruff, asthma	Fluid expressed from tonsils	Small to minute green zoned alpha, type 1	Negative	+	+	-	+	±3	2 Black 2,120 gm	0 6cc 3 generation	2cc 24 hours 2cc 48 hours	Sterile	Quiet first day with slight loss of weight, otherwise no symptoms and rapidly gained	WELL
No 3, Mrs K Apparently normal tonsils Chronic laryngitis	Fluid expressed from tonsils	Type 1 and a rare type 2	Negative	+	+	±3	+	+	3 White 2,255 gm	0 7cc 2 generation	1cc 24 hours 1cc 48 hours	Sterile	Quiet and lost in weight first few days No other symptoms	WELL
No 4, Mr S Arthritis	Pus from tonsil	Type 1 and few 2	Negative	+	±2	-	±3	+	4 Grey 2,420 gm	1 5cc 3 generation	2cc 24 hours 1cc 48 hours	Sterile	Slight loss weight. Gained No other symptoms apparent	WELL
No 5, Mrs G Apparently normal tonsils Bronchial asthma	Cheesy like mass	Type 1	Negative	+	+	-	-	+	5 Brown 1,500 gm	2cc 3 generation	1 7cc 24 hours	Sterile	Lost 50 gm in six days, developed sniffles but recovered and gained	WELL
No 6, H S Apparently normal tonsils Rheumatic manifestations	Cheesy like mass	Type 1 and hemolytic streptococci, Beta type	Negative	+	+	-	±3	+	10 Brown 1,875 gm	2cc 3 generation	2cc 24 hours 1 5cc 48 hours	Large number hemolytic colonies in both cultures No Alpha colonies	Animal decidedly ill lost in weight but gained after first week	WELL
No 7, R S Apparently normal tonsils No symptoms	Cheesy like mass	Type 1, and hemolytic streptococci, Beta	Negative	+	+	±3	+	+	7 Brown 1,900 gm	1 7cc hemolytic and Alpha 1 generation	2cc 24 hours	Excess hemolytic streptococcus colonies but no Alpha	Animal very ill Died fifth day	Hemorrhage of heart and lungs with congestion Turbid bloody fluid in pleura and kidneys hemorrhagic No abscesses
No 8, Mrs C J H Apparently normal tonsils	Culture from tonsil	Hemolytic streptococci Beta	Negative	+	+	-	±3	+	8 Brown 2,000 gm	2cc 3 generation Hemolytic and Alpha	2cc 24 hours	Excess hemolytic streptococcus colonies	Very ill and died 48 hours	Marked hemorrhage of heart and lungs with congestion, bloody fluid on peritoneum and pleura, kidneys hemorrhagic, liver soft and breaking on handling
No 9, D Apparently normal tonsils Repeated tonsillitis	Cheesy like mass	Type 1 and 2 and hemolytic streptococcus, Beta	Negative	+	+	-	±1	+	9 Black 2,250 gm	2cc hemolytic and Alpha	1 5cc 24 hours	Hemolytic streptococcus colonies but no Alpha	Very ill Lost 47 gm 48 hours	Extensive hemorrhage of lungs Slightly bloody fluid in pleura and peritoneum Kidneys small hemorrhagic No abscesses
No 10, Mrs G B Apparently normal tonsils	Cheesy like mass	Alpha, 1 and 3 and rare type 2	Negative	+	+	-	±2	+	10 Brown 1,570 gm	2cc 3 generation	2cc 24 hours	Sterile	Quiet, slight loss weight. Developed sniffles and died 7th day	Congestion of lungs No streptococci recovered from organs
No 11, M B Apparently normal tonsils	Cheesy like mass	Alpha, Type 1	Negative	+	+	-	±3	+	11 Black and white 1,700 gm	1 7cc 4 generation	12 cc 24 hours	Sterile	No apparent symptoms Loss weight Sniffles two weeks later and died	No streptococci found in organs or abscesses
No 11, M B	From above	Hemolytic (Beta) streptococci	Negative	+	+	-	±1	+	12 Black 1,675 gm	1 1cc 1 generation	0 5cc 24 hours	Many hemolytic streptococcus colonies	Very sick Died during bleeding	Lower lobes of lung hemorrhagic Few mottled hemorrhagic spots kidneys Organisms recovered from lungs
No 12, G K Apparently normal tonsils Double ethmoiditis	Cheesy-like mass	Alpha, Type 1 and few 2	Negative	+	+	-	±3	+	13 Grey 1,915 gm	1 5cc 4 generation	1 5cc 24 hours	Hemolytic streptococcus colonies	Very quiet and ill 48 hours	Hemorrhages with congestion of lungs Kidney hemorrhagic and bloody tinged fluid in peritoneum and pleura
No 12, G K	From above	Hemolytic (Beta) streptococci	Negative	+	+	-	±1	+	14 Red 2,120 gm	1 5cc 4 generation	2cc 24 hours	Sterile	Quiet day of bleeding Gained	WELL

No 13 Mrs C Apparently normal tonsils.	Cherry like mass	Type 1 and few Alpha	+	+	+	+	+	15 Brown 190 gm	1 sec 3 generation	cc 4 hours	Sterile	Slight loss of weight but no other symptoms
No 14 A. Apparently normal tonsils.	Cherry like mass	Alpha type 1 and few	+	+	+	+	+	16 Grey 185 gm.	1 sec 3 generation	cc 4 hours	Sterile	Lost 20 gm to fourth day then rapidly gained
No 15 D. Apparently normal tonsils.	Culture	Alpha type 1 and rare 2	+	+	+	+	+	17 Grey 100 gm.	1 sec 3 generation	1 sec 24 hours	Sterile	Lost 10 gm to sixth day then gained No other symptoms
No 16 R. Apparently normal tonsils.	Cherry like mass	Hemolytic (B) streptococcus	+	+	+	+	+	18 Black and white 200 gm	0 sec 3 generation	1 sec 24 hours	Large number hemolytic streptococci	Concession an 1 hemorrhage of lungs with bloody fluid in pleura also in peritoneum Kidneys hemorrhagic
No 17 M. Apparently normal tonsils.	Cherry like mass	Alpha type 1 and few	+	+	+	+	+	19 Brown 200 gm	1 sec 3 generation	1 sec 24 hours	Sterile	Quiet After three days no other symptoms
No 18 D. Apparently normal tonsils.	Culture	Alpha type 1 and few	+	+	+	+	+	20 Brown 190 gm	1 sec 3 generation	cc 24 hours	Sterile	Lost few grams no other symptoms
No 19 V. Apparently normal tonsils.	Cherry like mass	Alpha type 1	+	+	+	+	+	21 Grey 1900 gm	1 sec 3 generation	2 sec 24 hours	Sterile	Quiet Slight loss weight. Quickly gained
No 20 J. Apparently normal tonsils.	Cherry like mass	Alpha type 1 and few	+	+	+	+	+	22 Black 1500 gm	1 sec 3 generation	2 sec 24 hours	Sterile	No apparent symptoms
No 21 B. Apparently normal tonsils.	Cherry like mass	Alpha type 1 and rare 3	+	+	+	+	+	23 B Grey 250 gm	1 sec 3 generation	3 sec 4 hours	Sterile	Quiet and did not respond to treatment other symptoms
No 22 Mrs B. Abscess in right tonsil. Left apparently normal.	Pus from right tonsil and culture from left	Beta Hemolytic streptococcus	+	+	+	+	+	24 White 600 gm	0 sec 3 generation	cc 24 hours	Large number hemolytic streptococci colonies	Dilatation of heart and auricles. Hemiparesis and congestive edema of lungs. Encephalitis. Abscess of right ear. Enlarged spleen and enlarged soft bloody fluid peritoneum and lymphatic enlarged and hemorrhagic
No 23 Mrs B. Following acute tonsillitis.	Tonsil	Alpha type 1 and few 3	+	+	+	+	+	25 Ascaris 500 gm	1 sec 3 generation	3 sec 24 hours	Sterile	Slight loss weight. Canning
No 24 J. K. Endocarditis. Both tonsils scarred on surface from previous tonsillectomy	Tonsil	Alpha type 1 and few	+	+	+	+	+	26 Grey 1900 gm	1 sec 3 generation	3 sec 24 hours	Sterile	Some loss weight. Good appetite first day
No 25 Mrs F. Tonsillectomy. Apparently normal	Culture from cheesy like mass	Alpha type 1 and 2	+	+	+	+	+	27 Red 135 gm	1 sec 3 generation	0 sec 24 hours	Sterile	No apparent symptoms
No 26 Mr H. Tonsillectomy. Apparently normal	Pus	Pure culture streptococcus aureus	+	+	+	+	+	28 Brown 200 gm	1 sec 3 generation	2 sec 24 hours 1 sec 48 hours 1 sec 96 hours	Streptococcus viridans colonies 1 and 2 all positive due to force	III. Think fourth infection. Marked loss in weight also in peritoneum. Cysts in liver and one in peritoneal cavity
No 27 J. M. Tonsillectomy. Apparently normal	Culture.	Alpha type 1 and 2	+	+	+	+	+					

Key to carbohydrate fermentation  
 + strong reaction - no reaction = moderate - doubtful - none

## BACTERIOLOGICAL STUDY

## ANIMAL EXPERIMENTATION FOR VIRULENCE

Case and history	Material cultured	Colony study Blood agar plates Streptococcus	Bile solubility	Carbohydrate fermentation						Rabbit weight	Inoculation Intravenous Generation	Bleeding Hypodermically from Heart	Blood culture	Remarks	Autopsy
				L	D	M	R	Sac	Sul						
No 1, M G Apparently normal tonsils Aethmatic bronchitis	Cheesy like mass	Small to minute green zoned alpha type 1	Negative	+	+	-	+	+	+	1 Brown 2,000 gm	0 5cc 4 generation	1 5cc in 24 and 18 hours	Sterile	Animal was sickly 48 hours	Cultures from heart, liver, spleen and lungs did not reveal any streptococci. Yel fluid in pleura and periton
No 2, Dr F R Apparently normal tonsils Horse, diarrhoea, asthma	Fluid expressed from tonsils	Small to minute green zoned alpha, type 1	Negative	+	+	-	+	+	+	2 Black 2,120 gm	0 6cc 3 generation	2cc 24 hours 2cc 18 hours	Sterile	Quiet first day with slight loss of weight, otherwise no symptoms and rapidly gained	WELL
No 3, Mrs K Apparently normal tonsils Chronic laryngitis	Fluid expressed from tonsils	Type 1 and rare type 2	Negative	+	+	+	+	+	+	3 White 2,275 gm	0 7cc 2 generation	1cc 24 hours 1cc 18 hours	Sterile	Quiet and lost in weight first few days No other symptoms	WELL
No 4, Mr S Arthritis	Pus from tonsil	Type 1 and few type 2	Negative	+	+	-	+	+	+	4 Grey 2,420 gm	1 5cc 3 generation	2cc 24 hours 1cc 18 hours	Sterile	Slight loss weight Gained No other symptoms apparent	WELL
No 5, Mrs G Apparently normal tonsils Bronchial asthma	Cheesy like mass	Type 1	Negative	+	+	-	+	+	+	5 Brown 1,500 gm	2cc 3 generation	1 7cc 24 hours	Sterile	Lost 50 gm in six days, developed snuffles but recovered and gained	WELL
No 6, H S Apparently normal tonsils Rheumatic manifestations	Cheesy like mass	Type 1, and hemolytic streptococci, Beta type	Negative	+	+	-	+	+	+	6 Brown 1,875 gm	2cc 3 generation	2cc 24 hours 1 5cc 18 hours	Large number hemolytic colonies in both cultures No Alpha colonies	Animal decidedly ill lost in weight but gained after first week	WELL
No 7, R S Apparently normal tonsils No symptoms	Cheesy like mass	Type 1, and hemolytic streptococci, Beta	Negative	+	+	+	+	+	+	7 Brown 1,900 gm	1 7cc hemolytic and Alpha 4 generation	2cc 24 hours	Excess hemolytic streptococcus colonies but no Alpha	Animal very ill Died fifth day	Hemorrhage of heart and lungs with congestion Turbid bloody fluid in pleura and kidneys hemorrhagic No abscesses
No 8, Mrs C J H Apparently normal tonsils	Culture from tonsil	Hemolytic streptococci Beta	Negative	+	+	-	+	+	+	8 Brown 2,000 gm	2cc 3 generation Hemolytic and Alpha	2cc 24 hours	Excess hemolytic streptococcus colonies	Very ill and died 48 hours	Marked hemorrhage of heart and lungs with congestion, bloody fluid on peritoneum and pleura, kidneys hemorrhagic, liver soft and breaking on handling
No 9, D Apparently normal tonsils Repeated tonsillitis	Cheesy like mass	Type 1 and 2, and hemolytic streptococci, Beta	Negative	+	+	-	+	+	+	9 Black 2,250 gm	2cc hemolytic and Alpha	1 5cc 24 hours	Hemolytic streptococcus colonies but no Alpha	Very ill Lost 47 gm 48 hours	Extensive hemorrhage of lungs Slightly bloody fluid in pleura and peritoneum Kidneys small hemorrhagic No abscesses
No 10, Mrs G B Apparently normal tonsils	Cheesy like mass	Alpha, 1 and 3 and rare type 2	Negative	+	+	-	+	+	+	10 Brown 1,970 gm	2cc 3 generation	2cc 24 hours	Sterile	Quiet, slight loss weight Developed snuffles and died 7th day	Congestion of lungs No streptococci recovered from organs
No 11, M B Apparently normal tonsils	Cheesy like mass	Alpha, Type 1	Negative	+	+	-	+	+	+	11 Black and white 1,700 gm	1 7cc 4 generation	12 cc 24 hours	Sterile	No apparent symptoms Lost weight Snuffles two weeks later and died	No streptococci found in organs or abscesses
No 11, M B	From above	Hemolytic (Beta) streptococci	Negative	+	+	-	+	+	+	12 Black 1,675 gm	1 cc 4 generation	0 5cc 24 hours	Many hemolytic streptococcus colonies	Very sick Died during bleeding	Lower lobes of lung hemorrhagic Few mottled hemorrhagic spots Kidneys Organisms recovered from lungs
No 12, G K Apparently normal tonsils Double otitis media	Cheesy-like mass	Alpha Type 1 and few type 2	Negative	+	+	-	+	+	+	13 Grey 1,915 gm	1 5cc 4 generation	1 5cc 24 hours	Hemolytic streptococcus colonies	Very quiet and ill 48 hours	Hemorrhages with congestion of lungs Kidneys hemorrhagic and bloody tinged fluid in peritoneum and pleura.
No 12, G K	From above	Hemolytic (Beta) streptococci	Negative	+	+	-	+	+	+	14 Red 2,120 gm	1 5cc 4 generation	2cc 24 hours	Sterile	Quiet day of bleeding Gained	WELL

mal auricular fibrillation, but with the rest treatment and digitalis they did not distress her so much. It was found that her basal metabolism was decidedly elevated, at one time 74 per cent and later 54 per cent above the normal. There were, however, no eye signs of hyperthyroidism and the thyroid gland was not enlarged. She was finally discharged as an ambulatory patient very much improved.

Brief mention must be made of instances in which the presenting symptoms are those pointing to an acute appendicitis but which subsequently prove to be acute pericarditis. I have not had the opportunity of personally observing such cases, or if I have I was not aware of it\*. That it occurs as an infrequent event there is no doubt. Recently Holden<sup>1</sup> reported three cases that were operated on for acute appendicitis which 24-48 hours later developed the typical to and fro pericardial friction disclosing the true cause of the abdominal symptoms. Of possible help in such instances would be careful auscultation of the heart, placing the patient in different positions and listening with the patient's chest inclining forward. In as much as some patients with acute pericarditis may show dulness, bronchial breathing and bronchophony (Ewart's sign) below the angle of the left scapula even in the absence of a pericardial friction examination of this region should be made. Patients with a previous history of one of the rheumatic affections should arouse one's suspicion.

There is an entirely different set of circumstances which may lead our surgical confreres to call to us for advice namely if the heart has some given upset during or following operations. For a more complete report on this matter the reader is referred to a recent publication by the author.<sup>2</sup> The cardiac upsets that I refer to are similar to those we have frequently seen in medical patients, but here they either interfere with the actual surgical procedures during the operation itself or with the surgical convalescence. These disturbances are generally included in the term paroxysmal rapid heart action and may take on any of the following three forms: *Auricular tachycardia* (the ordinary paroxysmal tachycardia), *auricular flutter or auricular fibrillation*. The only type that I have observed during the anesthesia has been the first. Three such instances occurred and in each case the attack was immediately arrested by vagal stimulation. Two patients during the early days of convalescence after an operation had attacks of paroxysmal auricular flutter and five had paroxysmal auricular fibrillation. All of the patients in the last two groups responded very well to

proper digitalis therapy. The reader who is interested in the details of this subject is referred to the above mentioned article where the cases are fully described and the general management of this type of complication is discussed. Possibly with closer co-operation between the surgeon and the internist the incidence of these upsets will be found to be much greater than is generally thought. It should be borne in mind that we are not dealing here with what is ordinarily considered surgical shock, but rather with a definite well understood abnormal cardiac mechanism and it has been possible in all patients that the author has seen with such disturbances, to control the condition most favorably by proper means.

Finally, I wish to briefly refer to a matter about which we unfortunately have very little trustworthy information. The surgeon often will ask whether a certain cardiac patient can stand an operation, and we must make the decision. Fortunately it is not as a rule a difficult matter to settle. Most cardiac patients stand operation very well. Rarely there is a sudden and unexpected fatality. There has been no available study that indicates which type of cardiac patient is apt to do poorly. We can go only by impression. I have seen only two cardiac patients who died on the operating table, the one mentioned above who had infarction of the heart, and the other who had an acute myocarditis, rheumatic in origin with evidence of delay in the conduction of impulses from auricle to ventricle. For the present it probably is safe to say that patients with evidence of conduction difficulty in the heart may be subject to sudden calamity during anesthetization and all other cardiacs that are not markedly decompensated will do satisfactorily. This permits the surgeon to operate on cases of chronic endocarditis of the mitral and aortic valves, of chronic myocarditis, and also on patients with auricular fibrillation or with various extrasystoles.

A much more important decision for the clinician to decide is not whether the patient suffering with cardiac disease can stand an operation, but whether the operation is indicated. The errors in diagnosis enumerated above must be borne in mind. Furthermore the ultimate prognosis of the patient from the cardiac point of view should influence one in his decision. Certainly one would not be justified in recommending for operation a woman of 55 who has chronic myocarditis (with either *pulsus alternans* or auricular fibrillation) of such a severity that she is not expected to live more than a few years, unless the operation is urgent. Although one would not hesitate about performing an operation for an acute appendicitis or a perforated gastric ulcer, yet it might be unwise to perform a ventral suspension for uterine prolapse or a repair of a ventral hernia. It is in such instances that a clear under-

\* Since this paper was read a patient was seen with findings pointing strongly to a perforated gastric ulcer but in whom there was a faint pericardial friction. The patient made a complete recovery after running a short course of acute pericarditis.

rhythm and rate if marked changes in the ventricular complexes are obtained in the electrocardiograms. One patient who was previously operated on for gall stones with negative findings, had a more typical picture of angina pectoris when I saw him. He had lengthening of the Q-R-S complex in his electrocardiograms and probably had an attack of cardiac infarction at the time of the abdominal operation. This patient has done quite well for twelve months, although he still has anginal attacks.

There is an entirely different type of heart patient who might present a perplexing situation to the surgeon, i. e., those with auricular fibrillation or delirium cordis. Some years ago a middle aged woman entered a hospital with acute pain in the gall bladder region. She had previously been in fair health and the onset of her complaint was sudden. There was in addition to the abdominal pain, nausea, vomiting, jaundice and slight fever. On physical examination the sclerae were yellow and there was marked tenderness in the region of the gall bladder. The patient was operated on and the gall bladder removed. No stones were found but in the course of several weeks the patient recovered and remained in fair health for almost two years. She subsequently entered our hospital for a similar attack, and when we saw her the condition was evidently one of acute heart failure with a markedly congested liver. There was auricular fibrillation and evidence of mitral stenosis. The tenderness under the right costal margin and the jaundice were due to an engorged liver, and the fever was such that frequently accompanies cardiac failure. She improved very strikingly under digitalis treatment. Her first attack for which she was operated on probably resulted when her heart, which had previously been well compensated, developed the new rhythm of auricular fibrillation with the accompanying rapid ventricular rate. Under such circumstances, there can develop very sudden and extreme symptoms of cardiac failure, for the heart already damaged is unprepared for the abrupt assumption of such a rapid rate.

It is not certain whether the patient just described had a transient form of auricular fibrillation or not, because no records could be obtained as to the rhythm between the two attacks. Most likely the rhythm was regular until the sudden upset at the time of the first attack, then it returned to normal and remained so until the second attack, when auricular fibrillation again set in. This time, however, it apparently became permanent. This going-in-and-out of auricular fibrillation is not an unusual event although the condition used to be called perpetual arrhythmia. It is just this form of transient auricular fibrillation that may suddenly present acute abdominal symptoms strongly suggesting gall stones. This

type of case will generally respond quite favorably to proper digitalis medication and general cardiac treatment.

The following case illustrates a somewhat similar course of events, only associated with hyperthyroidism. The patient was a woman 37 years old. Her family history was unimportant and she never had acute rheumatic fever, chorea or pneumonia. Seven years previously she had a partial thyroidectomy for exophthalmic goitre. Two years ago a ventral suspension of the uterus was performed for uterine prolapse, cystocele and rectocele. For the past few years there has been frequent pain in the abdomen associated with an empty stomach and relieved by food. There was also present at various times considerable quantities of sugar in the urine but the diabetic element in the condition was readily controlled by slight restrictions in the diet. Associated with the stomach pain there frequently was palpitation of the heart. Two years before, it was known that the patient had transient attacks of auricular fibrillation lasting several hours, the heart action at other times being fairly slow and regular. Five days before admission while lifting a heavy basket, the patient was taken with a sharp pain in the region of the right costal margin radiating up towards the chest and also down to the right thigh. There was also some palpitation and shortness of breath. Upon lying down the pain passed away in a short while and then she felt nauseated and vomited. During the past 5 days there was frequent vomiting and pain in the upper right side of the abdomen in the form of attacks.

She was sent to the surgical service of the hospital from the surgical out patient department with a diagnosis of acute cholecystitis or acute appendicitis. Her temperature was 102 and the heart rate was about 140, although the rate at the radial was only 108. The white blood cell count was 12,200. The examination of the heart showed slight hypertrophy and an absolute irregularity of the rhythm. There was tenderness in the epigastrium and under the right costal margin and an indefinite mass was felt which was thought to be either liver or right kidney. Upon request of the surgeons there was a medical consultation and it was decided, in as much as the patient was known previously to have had attacks of palpitation during which her heart action became absolutely irregular and rapid, that the most important element in the condition was the heart despite the evidence pointing to gall bladder disease. It was also believed that the heart irregularity would very likely be transient in nature. She was therefore given digitalis in fairly large doses and in the course of a few days improved very strikingly and the heart became absolutely regular. During her stay in the hospital she had numerous other attacks of paroxys-

mal auricular fibrillation, but with the rest treatment and digitalis they did not distress her so much. It was found that her basal metabolism was decidedly elevated, at one time 74 per cent and later 54 per cent above the normal. There were, however, no eye signs of hyperthyroidism and the thyroid gland was not enlarged. She was finally discharged as an ambulatory patient very much improved.

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a base of supplies, a reserve force upon which they may call. It sends members of its staff to the local laboratories in case of any emergency so that the laboratory service of the district may continue its work without interruption and may be equal to the demands made upon it. When necessary the laboratory supplies reagents for certain tests, it maintains a bacterial collection from which transfers may be obtained as needed, thus obviating the necessity for each laboratory to maintain such a collection. Unusual cultures may be sent to the central laboratory for identification, and the laboratory stands ready to advise wherever help is desired, and to do all in its power to secure the necessary support for the establishment and development of local diagnostic laboratories. Workers from the local laboratories also are at all times welcome at the laboratory in Albany if they wish training in any special procedure. But above all, the central laboratory should and will each year more effectively be the main support of the local laboratories throughout the state that are doing good work in securing the proper conditions for carrying on their work. This is not only a duty but it is a privilege. It will be welcomed and fulfilled.

While the central laboratory has endeavored with a certain measure of success to standardize procedures and generally to help in the work of providing the best possible laboratory service for the people of the state, the greatest step in advance has been taken by the local laboratories themselves in the organization of this association. The association of the laboratory workers, their acquaintance with each other and with each other's problems and difficulties is most encouraging and helpful, and the discussion of pertinent subjects is stimulating to us all. The improvement of laboratory service lies largely with the laboratory association. Minimum standards may be prescribed by the state laboratory, but the best results will be secured if the association maintains its standards always somewhat in advance of the minimum required by law. Thus if a laboratory, in order to enjoy representation in the association, must satisfy requirements in advance of those demanded for approval, the laboratories themselves will lead in increasing the quality of laboratory work and in attaining the highest standards possible. This will redound to the credit of the association as well as to the standing of the state in public health matters. The state laboratory needs the support and scientific background of the association in much the same way that the local municipal and county laboratories need the state laboratory.

The next logical step whereby this end may be furthered is the publication of a laboratory paper, planned solely with a view to the needs of the laboratories of the state, and especially those of the smaller laboratories. This has been under

consideration by the association for some time, and the central laboratory feels that some beginning should be made. Accordingly plans have been made to prepare and distribute Laboratory Notes.

This plan for the standardization of the public health laboratory work of New York State through the co-operation of all the local laboratories which has been developing in the minds of us all for nearly seven years—despite inevitable interruptions which have delayed all such constructive work—is now being definitely shaped. Its purpose is to organize and to standardize our work so well that we shall be able to give to every community in the State of New York the best possible laboratory service. In the last analysis, the formation of such a comprehensive policy is not determined by nor is its fulfillment dependent upon any one person or one laboratory, yet there must always and inevitably be a responsibility for leadership, and this responsibility the central laboratory cannot evade. To the success of the plan, however, the wise counsels of each and every one must contribute.

## District Branches

### SEVENTH DISTRICT BRANCH

ANNUAL MEETING, ROCHESTER, N. Y.

THURSDAY, OCTOBER 6, 1921

The meeting was called to order at 10 o'clock in the Rochester Club by the President, Dr. Jones. There was a large attendance.

There being no reports of committees or unfinished business, the election of officers was held, which resulted as follows: President, Ethan A. Nevin, Newark; First Vice-President, William I. Dean, Rochester; Second Vice-President, Warren Wooden, Rochester; Secretary, G. Kirby Collier, Rochester; Treasurer, Alfred W. Armstrong, Canandaigua.

### SCIENTIFIC PROGRAM

"The Relation of the Differential Count to the Total White Count," W. Parker Stowe, M.D., Rochester.

Discussion by Drs. Booth, O'Grady and Brown.

"Pyelitis in Young Children," Joseph Roby, M.D., Rochester.

Discussion by Drs. Garlick, Beavan, Stanton, Mellon, Orchard, Aikman and Sill.

"Some Observations on the Post-Operative Use of Radium," Edgar A. Vander Veer, M.D., Albany.

Discussion by Drs. Mulligan, Jameson, Prince and Stanton.

"The Medical Practice Act," William D. Cutter, M.D., Albany, Secretary of the Board of Medical Examiners.

"Some Causes of Renal Pain Not Commonly Recognized," Edwin MacD. Stanton, M.D., Schenectady.

Discussion by Drs. Mulligan, Mellon and Ward.

"The Treatment of Focal Infections of the Throat by X-Ray as Compared with Surgical Removal of the Tonsils and Adenoids," William D. Witherbee, M.D., New York City.

Discussion by Drs. Flynn, Palmer, Ingersoll, McDowell, Hoyt, Avery and Roby.

"Arterio-Spasm," Nelson G. Russell, M.D., Buffalo.

## New York State Journal of Medicine

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street New York, N. Y.

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## MEDICAL ECONOMICS IN ENGLAND

IN the present drastic effort to reduce taxation and lessen the cost of living in England the physicians' fees are not escaping attention, essentially those controlled by legislative enactment, notably in workmen's compensation and compulsory health insurance cases. Bills have been prepared to materially reduce the physicians' compensation and not only the medical press but the daily papers as well are loud in their protest against this attempt to do injustice to medical men. Coupled with these arguments are complaints about the expense of maintaining the health insurance service, the unnecessarily large staff in the department of administration, incompetent overpaid officials and the like, all statements which bring to mind the arguments advanced time and again before the legislative committees of our various states in the debates in opposition to the enactment of compulsory health insurance laws in America.

Future legislative sessions will, without doubt, continue to present compulsory health insurance measures, and these relatively desultory statements as detailed strengthen the belief that the best arguments to use on such occasions would be the facts obtained by an accurate complete and efficient study of the practical working of health insurance in the countries which have such law. While it is true that investigations have been made by individuals and committees this work has not been done either by the persons or in a way to make the reports command the respect of the medical profession or of the legislative bodies of our states.

The *London Times* of September 20 calls attention to a warning issued by the General Medical Council to the effect that England has too many doctors. The new students of medicine in 1900 to 1913 numbered about 1,400 annually, while in 1919 there were 3,420 and in 1920 the only slightly lower number of 2,531. For some reason the lure of medicine grows stronger as that of other professions declines. The position is not considered hopeful. The new arrivals are likely to find many difficulties and will not be able in most cases to earn more than a bare living. Attention is also called to the fact that according to competent authorities at least £1,500 must be set aside for medical education. The number of women students has much increased and the proportion of women to men in the profession is changing rapidly. That all these medical women will be able to find work at once is considered unlikely.



## COMMERCIAL LABORATORIES

**A**T a recent meeting of the Medical Society of the County of New York the following resolution was adopted

"As a matter of public policy, it is recommended to the profession that their support of commercial laboratories be withdrawn and wherever possible patients be referred to laboratories under the supervision of competent and qualified medical men"

This action was doubtless prompted by the rapidly increasing number of "commercial laboratories," particularly those undertaking X-ray and clinical pathological work by persons other than those licensed to practice medicine, in fact, by men and women more or less technically qualified but without proper academic or legal status for the work. The problem of safeguarding the public and the medical profession in the matter of incompetent laboratory work is not a new one, nor can it be said that it has not had the careful consideration of those best suited to deal with it, and, unfortunately, no relief can be hoped for as a result of the quoted resolution of the New York County Society. The importance of laboratory work in practical medicine is a development of relatively recent years, and the need of legal standards of qualification for this special work is evident to anyone who is acquainted with existing conditions. Modern achievement in special lines of work makes it as undesirable to allow even a medical graduate to conduct a laboratory as it does to allow the same man to undertake a complex surgical procedure, unless specially qualified, and "commercial laboratory" conditions will not improve until the state imposes a legal system of inspection and licensure. This is, however, more easily said than done, because this undertaking in detail is far more complex than appears at first sight, and the task of proper licensure may even be made difficult by using the license to practice medicine to offset any criticism of special laboratory work incompetently done by a medical graduate. Current criticism is chiefly directed against laboratories conducted by "technicians", in other words, by persons who have in one way or another acquired a technical knowledge of the subject in most cases without the essential preliminary academic and fundamental technical training necessary to make a thoroughly competent laboratory expert. The extent of this training varies, of course, in different cases, and the complaint of inefficiency justly applies to most of those workers but not to all. While it is not an uncommon experience to find a technician with greater technical and even keener diagnostic ability than that of the director who is a medical graduate, this, of course, does not detract from the undesirability of laboratories

conducted by "technicians" exclusively, but shows how difficult it will be to regulate the laboratory situation. Biological chemists with university degrees who have not studied medicine and hold no medical degree occupy important chairs in some of our foremost medical colleges, and in some instances have not only made brilliant discoveries in the interest of medical diagnosis but stand today amongst our most eminent diagnostic clinical pathologists. In these days of the prompt recognition and support of efficiency it would be absurd to deny such men the privilege of conducting laboratories, and how the limiting of laboratory work or even the directing of laboratories to medical graduates would not only be unreasonable but also unjust and how this scheme cannot be used to solve the problem of the inefficient laboratory. After all, regulation seems to offer the only solution. The purely voluntary regulation of the public health laboratories of the State of New York by the State Department of Health during the last few years is an example well worthy of study. The kindly constructive criticism by competent inspectors immediately gains the good will of the laboratory worker and better work is the result.

Finally, it remains a fact that a laboratory cannot be conducted unless its work meets with the approval of a sufficient number of physicians. If physicians are satisfied with the poor work of an inefficiently conducted laboratory it will endure unless it is closed by legal inspection and regulation. If, however, the physician will insist on competent laboratory work done by properly qualified persons the inefficient laboratory will improve its standards or go out of existence.

## Deaths

CHAPIN, WARREN B., New York City, New York University, 1888, Fellow American Medical Association, Member State Society. Died August 28, 1921.

CONKLIN, WILLIAM JAMES, Fishkill, New York University, 1870, Fellow American Medical Association, Member State Society, Consulting Physician, Highland Hospital. Died September 26, 1921.

COUTANT, RICHARD B., Tarrytown, College of Physicians and Surgeons, of New York, 1872, Fellow American Medical Association, Member State Society, Physician, State Hospital Crippled and Deformed Children, Chief of Staff, Tarrytown Hospital. Died September 13, 1921.

CUNNINGHAM, WILFRED B., Mamaroneck, Harvard, 1903, Fellow American Medical Association, Member State Society. Died September 12, 1921.

WARNER, FRANKLIN P., Canandaigua, New York University, 1881, Member State Society, Ophthalmologist and Otologist, Thompson Memorial Hospital. Died August 30, 1921.

## County Societies

### MEDICAL SOCIETY, COUNTY OF NASSAU

TUESDAY SEPTEMBER 27, 1921 MINEOLA N Y

The Third Quarterly meeting of this Society was called to order in the Nassau County Court House. All parts of the County were represented there being an attendance of between twenty five and thirty.

Dr George F Adair of Lynbrook and Dr Warren P Kortright of Huntington were elected to membership. An amendment to the By Laws increasing the annual county dues from \$2 to \$3 was unanimously adopted to take effect January 1, 1922.

Dr Dunlap P Penhallow, Surgeon U S P H S, District Manager U S Veterans Bureau, gave a very clear and interesting talk in explanation of the Sweet Bill as applied to disabled former service men. His explanation of the provisions now made for men disabled in the service was listened to with marked attention.

Mr George W Whiteside, Counsel of the Medical Society of the State of New York, read a very interesting and important paper upon the Law Risks of Medical Practice and Indemnity Insurance. The information in Mr Whiteside's paper was very important as it made plain the legal status of a practicing physician, under the laws of the state. A general discussion followed in which Mr H T Wanvig, Vice President of the Medbury Agler Company who is looking after the group indemnity plan of the Aetna Insurance Company, briefly explained the plan which has received the sanction of the House of Delegates of the State Society.

### TOMPKINS COUNTY MEDICAL SOCIETY

TUESDAY SEPTEMBER 20 1921 ITHACA N Y

The meeting was called to order in the Court House. The Vice President Dr Dumond in the Chair in the absence of the President Dr Edward L Bull.

The minutes of the June meeting were read and approved as read.

Dr Harold H Fox was transferred to membership in the Chemung County Society.

A communication was read from Henry D Thomason M D of New York City. No action taken.

The application of Joseph J Wells M D of Ithaca N Y was received and referred to the Censors.

#### SCIENTIFIC SECTION

Post Operative Treatment by H J Knickerbocker M D of Geneva N Y. Dr Knickerbocker being unavailably absent the paper was read by James S Allen M D, of Geneva.

The writer presented a brief though comprehensive resume of post operative treatment as carried out in his service in the Geneva Hospital.

It was moved and carried that this Society presents its thanks and appreciation to Dr Knickerbocker and Dr Allen.

Foci of Infection and their Relation to the Special Organs of the Head by Hudson J Wilson M D, of Ithaca N Y was well presented timely and being of special importance to the general practitioner brought out a full discussion.

### MEDICAL SOCIETY, COUNTY OF WASHINGTON

ANNUAL MEETING IN THE COURT HOUSE HUDSON FALLS N Y

The meeting was called to order at 11 A M by Dr Pashley, Dr Paris having been excused. Nineteen members and six visitors were present.

The minutes of the last meeting were read and approved.

The following officers were elected:  
President Russell C Paris, Vice President Harry Blackfan, Secretary S J Banker, Treasurer Samuel Pashley, Censors John L Byrnes, Zenas W D Orton, Robert E Plunkett, Delegate to State Society Walter A. Leonard, Alternate Robert A Heenan.

The President appointed the following Committee on Legislation:

Robert A Heenan, George M Stillman, George D Wilde.

The Treasurer reported a balance of \$101 05.

The Secretary's report was read.

Moved by Dr Pashley that the Secretary write to the State Counsel for information regarding insurance. Seconded and carried.

Moved that the Secretary write to the President of the Fourth District Branch regarding the time of meetings so they would not conflict with Health Officers' meeting.

#### SCIENTIFIC SESSION

Dr W E Munson presented a case of Pseudo Hypertrophic Muscular Atrophy and gave the history of three others in the same family.

Dr W A Leonard gave an address on small pox giving the history of the Cambridge epidemic and presenting photographs of a number of cases. Followed by a discussion on vaccination by Dr Wadsworth and Dr Howe.

A vote of congratulation was tendered Dr James S Cooley of Mineola upon his long and useful career. Dr Cooley was a former member of the Society.

Dr P H Huntington gave an interesting paper on Teeth as a source of local infection in systematic disease.

Dr Augustus Wadsworth from the State Department of Health spoke on the importance of local Laboratories. The President appointed the following committee to investigate the subject and report at the next meeting: Drs Robert D Davies, Chairman, Robert A Heenan and Arthur E Falkenburg.

Dr W A Howe spoke on the importance of School Inspection the results that had been accomplished the importance of more thorough work in the future, and that physicians should receive better pay for this work.

### COLUMBIA COUNTY MEDICAL SOCIETY

ANNUAL MEETING HUDSON N Y, OCTOBER 4 1921

The meeting was called to order at the Cavell House and the following officers elected:

President Henry C Galster, Vice President John L Edwards, Secretary and Treasurer, Charles R Skinner, Censors Louis Van Hoesen, Clarke G Rossman, Roscoe C Waterbury, Frank C Maxon and Charley Nichols. Delegate to State Society Sherwood V Whitbeck. Alternate Henry C Galster.

Luncheon was served by the Hospital, assisted by the wives of members of the Society.

#### SCIENTIFIC PROGRAM

Encephalitis Lethargica—Hermion C Gordinier, Troy.

Epidemic Encephalitis—John W Mambert.

Gunsight Wound of Lung—Case Report Sherwood V Whitbeck Hudson.

### MEDICAL SOCIETY, COUNTY OF ESSEX

ANNUAL MEETING PORT HENRY N Y, TUESDAY, OCTOBER 4 1921

The meeting was called to order at the Lee House at 2 45 P M., with nine members present and three guests. The minutes of last meeting were read and approved as read.

The Committee on Nominations reported the following nominations for officers for 1922:

President Thomas J Dowd, Vice President, John D Smith, Secretary Charles R Payne, Treasurer, William T Sherman, Censors Robert T Saville, Thomas H Canning, Thomas J Cummins, Delegate to State Society C R Payne, Alternate to State Society Thomas H Canning.

Motion made and seconded that the Secretary be instructed to cast one ballot electing these officers for 1922. Carried.

Harold J Harris of Westport, was elected to membership.



# COUN

**MEDICAL SOCIETY AND THROAT NURSING** By A EDWARD  
TUESDAY, SEPT 1, M D and BEYMAN DOUGLASS, M D  
Third Edition with 32 illustrations 1 A  
The Third Quarter Phila 1920 \$2.50 net

called to order in the parts of the Courts of this very instructive book with char attendance of the students. However many doctors will find Dr George's book full of practical hints regarding the care of throat and treatment of special cases.

An amen! county or ophthalmic nurses Dr Davis has two important receipts or commandments which might be properly added to the Decalogue

- 1 Thou shalt be altogether clean and gentle when caring for the eyes
- 2 Thou shalt not apply poultices to the eye.

The chapter on Serums and Vaccines is of special interest. For these remedies mark a new era in the successful treatment of many diseases of the eye. In his author's words: "It is in the acute form of hypopyon conjunctivitis that the vaccine treatment brings the most gratifying results with the saving of the sight and the eyeball itself."

The section on the ear, nose and throat was written by Dr Douglass. In plain terse English the nurse is old what to do and how to do it in the most efficient manner.

It is gratifying to note the statement that an ice coil should not be applied to an inflamed ear more than twenty-four hours.

JAMES W INGALLS

**A LABORATORY SYLLABUS OF CLINICAL PATHOLOGY** By CHARLES E SIMON, B A M D Octavo of 86 pages interleaved Lea & Febiger, 1919 Phila and New York \$2.00

This little volume of 86 pages offers considerable help to the student and to the assistant in clinical pathology. It covers routine examinations of blood, urine, spinal fluid, gastric contents as well as sputum transudates and exudates. Under blood examinations the author includes the Wassermann reaction, transfusion tests and the microchemical examinations for sugar and urea.

The subject matter is arranged in connection with each lesson under three headings: (1) instruction of the assistant regarding the nature of the materials, reagents and apparatus required for each lesson; (2) instruction of the student as to the day's work; (3) a set of questions based upon work in the laboratory and upon home reading. The work is divided into 39 lessons of 2 hours each.

HENRY M FEINBLATT

**COMPEND OF DISEASES OF THE SKIN** By JAY FRANK SCHAMBERG, A B M D Sixth Edition Revised and Enlarged P Blakiston's Son and Co Philadelphia 1921 12mo of 314 pages 119 illustrations \$2.00

Generally speaking compends are of doubtful value; the only excuse for their existence is that they give the medical student a rapid means of preparation for examinations.

The sixth edition of Dr Schamberg's well known compend has been brought up to date and considerably enlarged; especial attention should be called to the chapter on syphilis.

Any one feeling the need of a compend on skin diseases can be assured of getting a working knowledge from the book under review.

W

**SURGICAL ASPECTS OF DYSENTERY INCLUDING LIVER AND SPLEEN** By ZACHARY COLE, B A M D MS Lond F R C S Eng Oxford University Press New York City 1920 Price \$5.00

The author applies the term dysentery to invasion of the large bowel by the *Entamoeba histolytica* or by various bacilli.

Under various chapter headings he takes up in detail the immediate lesions, perforation, local edematous colitis, dysenteric appendicitis, structure of the colon, perinephritic abscess and periproctitis.

He discusses the remote lesions, symptoms, diagnosis, prognosis and treatment of amebic dysentery, hepatitis and abscess of the liver.

To those who have found the literature of the surgical aspects of dysentery not readily accessible this monograph will prove welcome. The author has had considerable experience in the Royal Army Medical Corps while stationed in Mesopotamia. The basis of this book is his own experience in about one thousand cases and that which has been obtained from other authorities.

Portions of the text represent Hunterian Lectures reprinted from the *Lancet*.

R H FOWLERS

**HANDBOOK OF ELECTRO-THERAPY** For Practitioners and Students By BURTON BAYER GROVER M D Illustrated with 103 engravings in the text and 6 plates of 12 charts F A Davis Company, Philadelphia Pa 1921 \$4.00 net

The book starts with a very interesting presentation of the history of electricity including the fact that John Wesley the eminent divine wrote the first treatise in the English language upon the subject of electricity. Modern progress is illustrated by quoting Huxley's interesting demonstration of refraction or reflexion of X rays as distinguished from the early view that neither took place but only a diffusion of secondary X rays. "When a narrow beam of X rays passes through a fine powder of any crystalline material it produces on a photographic plate placed just behind the powder a pattern of concentric rings."

An important subject mentioned is the Harrower test for hyper- or hypothyroidism. Make a record of the pulse rate at 3, 6 and 9 P M. The next day give one-half grain thyroid extract at 8, 10, 12 and 2 o'clock and record pulse at 9, 12, 3, 6 and 9 o'clock. This is repeated the following day with one grain doses and the next day with two grain doses. No thyroid is given on the fourth or fifth day. Typical exophthalmic goitre has hyperthyroidism, is aggravated extract and X ray treatment is indicated. The opposite result viz benefit from the thyroid administration indicates hypothyroidism which is benefited by diathermy.

Very well presented are the techniques of static galvanic, sinusoidal and high frequency currents including diathermy and the X ray. There is a special chapter upon blood pressure of value as presenting the author's personal results in high arterial tension and the like. Other sections are devoted to various conditions amenable to electrotherapy, with directions which are practicable and reliable. Very often however the statement is made that this or that electrical application has been recommended but that the author has tried it with poorer results than those obtained from for example Epsom salt. Electricity is not presented as a panacea.

**THE ALLEN (STARVATION) TREATMENT OF DIABETES**, with a Series of Graded Diets By LEWIS WERN HILL, M D and RENA S ECKMAN Fourth Edition 12mo of 140 pages Boston W M Leonard 1921

The fourth edition of this book presents very little difference from the third edition. It will remain a valuable addition to the armamentarium of the doctor in the treatment of diabetes.

MEYER RAPINOWITZ

**NITROUS OXIDE-OXYGEN ANALGESIA AND ANAESTHESIA IN NORMAL LABOR AND OPERATIVE OBSTETRICS** F H McMECHAN, M D, Editor A Monograph prepared for the benefit of all those concerned in safer and more efficient obstetrics and anaesthesia National Anaesthesia Research Society 1920

This monograph appeals to all concerned for the safety of obstetric patients. The editor has made use of the writings, opinions and experience of a large number of physiologists, obstetricians and physician-anesthetists in this compilation of the advanced thought and most recent practice of anesthetic procedure. Dickinson and Polak, Guedel and Davis, Henderson and Cattell, inter alia are quoted in greater or less detail. McKesson and Miller contribute longer experiences, while the work done in the Philadelphia, Rochester and other laboratories is freely drawn upon. It is a special plea for special work. It is an attempt to answer authoritatively many questions which persistently intrude upon the obstetrician when he tries courageously to do the very best for his patient.

A F E

**A SHORT HISTORY OF NURSING FROM THE EARLIEST TITLES TO THE PRESENT DAY** By LAVINIA L DOCK, R N, in collaboration with ISABEL MAITLAND STEWART, A M, R N. Published by G P Putnam Sons, New York and London, 1920 Price, \$3 50

The authors of this work endeavor to cover in condensed form the field of their previous and larger treatise. They set forth in their preface the laudable object which they intend this work to achieve, namely the awakening in the student nurse, of a better conception of the traditions and obligations of her profession.

The splendid services of the nurses in the World War could have been rendered only by the type of women who performed them, that is to say, by the best possible personnel, thoroughly imbued with the spirit of their age-old profession, and equipped with the most modern knowledge. It is well that no more time has elapsed without their accomplishments being perpetuated in print. The authors have not contented themselves with merely looking back into the past, or even into the very recent past, for all that is good, but have very wisely projected what they found into the future in a chapter treating of the tasks that are still ahead, and of those ideals that must live in every individual nurse, in order that the collective morale of the profession shall be such that such tasks can be accomplished.

We believe that the best use of this work would be in the early period of training, to the end that the probationer who is then getting her first view of her future duty, may at the same time better appreciate that her rather humdrum work and study have in them, after all, something above the purely material, and thus be made to feel in herself and her profession that which will help to carry her over the rough road of the first few months.

A ROSS MATHESON

**THE PRINCIPLES OF THERAPEUTICS** By OLIVER T OSBORNE, M D, Prof Therapeutics, Department of Medicine, Yale University. Octavo, 881 pages. Phila and London W B Saunders Co, 1921 Cloth, \$7 00 net

An excellent book that should be in the hands of every practitioner who is called upon to prescribe drugs or diets. There is an avoidance of all that is pedantic, and the information imparted is scientifically accurate. The book is essentially practical. It can thus be of great service in the rational use of drugs. A severe blow is thus delivered against polypharmacy and the prescribing of proprietary nostrums.

A satisfactory discussion of prescription writing, diets, glandular extracts, physiotherapy, baths, and climates marks a valuable addition to the chapters on drugs.

MEYER A RABINOWITZ

**SQUINT, ITS CAUSES, PATHOLOGY, AND TREATMENT** By CLAUD WORTH, F R C S. Fifth Edition. Octavo of 242 pages, illustrated. Philadelphia P Blakiston's Son & Co, 1921 Cloth, \$3 50

This treatise of about 250 pages explains the etiology, pathology and treatment of strabismus. After an extensive experience of many years, Worth maintains that of the cases of squint in which efficient treatment is carried out from the first appearance of the deviation, only a small proportion will need operation. However, if operation is needed, advancement is the only really satisfactory and safe operation.

The chapter on Illustrative Cases is a safe and sane guide for those who are anxious to learn the very best methods for treating various forms of strabismus.

The chapter on Heterophoria is concise and practical. The subject as presented is worthy of careful study. The fact that five editions have been issued in 20 years is a strong proof that this work still continues to be highly appreciated by the profession.

JAMES W INGALLS

**A COMPEND OF HUMAN PHYSIOLOGY**, especially adapted for the use of medical students. By ALBERT P BRUBAKER, A M, M D. Fifteenth Edition. 12 mo of 264 pages, with 260 illustrations. Philadelphia P Blakiston's Son & Co, 1921 Cloth, \$2 00

This edition, carefully revised and rewritten, commends itself to the clinician as an opportunity to rapidly review the elements of physiology and acquaint himself with some important advances.

It might be suggested that in a future edition, Metabolism be treated in a separate chapter.

H KOSTER

**SURGERY OF THE UPPER ABDOMEN** By JOHN B DEEVER, M D, Sc D, LL D, F A C S, and ASTLEY PASTON COOPER ASHHURST, A B, M D, F A C S. Second Edition. Octavo of 832 pages, with 9 colored plates and 198 other illustrations. Philadelphia P Blakiston's Son & Co, 1921 Cloth, \$14 00

This volume on surgery of the upper abdomen is a complete work on the anatomy and physiology of the organs of that region, the pathogenesis, pathology, symptomatology, and the surgical treatment of the diseases encountered, thoroughly modernized and presented in a style that makes its reading fascinating. It incorporates the enormous experience of the authors, thus making of it, as nearly as is possible, an original surgical text. It is generously illustrated, in the majority of instances by drawings and photographs of their own specimens.

A noteworthy feature is the treatment of the subject from the standpoint of differential diagnosis.

H KOSTER

**OPERATIVE SURGERY** For Students and Practitioners. By JOHN J MCGRATH, M D, F A C S. Sixth Revised Edition. With 369 illustrations, including full-page color and half-tone. F A Davis Company, Philadelphia, Pa, 1921 \$8 00 net

The book is divided into ten parts. The first includes general considerations of anesthesia, division of tissues, hemorrhage and suture of tissues. The remaining parts deal with operations on various anatomical regions. The operations of gynecology are not included. In many instances these are prefaced by considerations of the surgical anatomy of the part.

This is a safe book for students of surgery, and reflects the best of modern teaching. The author should feel repaid for the time and effort expended in its preparation, for it has been satisfactorily brought up to date. It should continue to enjoy the well-established popularity established for it in 1902.

R H FOWL

# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL 21, No 11

NEW YORK, N Y

NOVEMBER, 1921

## NON-SPECIFIC PROTEIN THERAPY IN ARTHRITIS AND INFECTIONS RE- MARKS ON THE NATURE OF THE CLINICAL REACTION\*

By DAVID MURRAY COWIE M D

ANN ARBOR MICH

From the Department of Pediatrics and Infectious Diseases  
University of Michigan Hospital

WHEN we resumed our studies last fall, on the nature of the reaction induced by the injection of foreign protein and other inert dead substances into the animal body, I was reminded of a quotation once cited by our beloved William Osler, who still lives with us Barclay a leading anatomist of the past century, addressing his class, made the following remarks "Gentlemen, while carrying on your work in the dissecting room, beware of making anatomical discoveries and, above all, beware of rushing with them into print Our precursors have left us little to discover You may, perhaps, fall in with a supernumerary muscle or tendon a slight deviation or extra branchlet of an artery, or perhaps, a minute stray twig of a nerve—that will be all But beware! Publish the fact, and ten chances to one you will have it shown that you have been forestalled long ago Anatomy may be likened to a harvest field First come the reapers, who, entering upon untrodden ground cut down great store of corn from all sides of them These are the early anatomists of modern Europe, such as Vesalius, Fallopius, Malpighi, and Harvey Then come the gleaners, who gather up ears enough from the bare ridges to make a few loaves of bread Such were the anatomists of last century—Valsalva, Contumnus, Haller, Winslow, Vicq d'Azyr, Camper, Hunter, and the two Monros Last of all come the geese who still contrive to pick up a few grains scattered here and there among the stubble, and waddle home in the evening, poor things cackling with joy because of their success Gentlemen, we are the geese"

So much had already been done it seemed that we were the geese waddling along picking up a grain here and there We were uncertain ourselves and there seemed to be no unanimity of opinion among others as to what the nature of this non specific mechanism is We realized that

we were waddling, but not in a restricted field As Osler remarks "The broad acres of biology were open before us" This should encourage one to go on, even if the problem he is interested in seems to be of little importance

Science moves but slowly slowly,  
Creeping on from point to point

When one thinks of successful therapeutics he thinks of measures directed knowingly at a disease process We have long since convinced ourselves that there are many infectious processes perhaps most of them which run a definite limited course and which if uncomplicated usually terminate in a more or less perfect cure Accordingly we are very desirous of learning what we can about the normal course of disease processes, and we are particularly interested in knowing when and for how long we should keep our hands off There are other infectious processes which instead of tending to cure tend to chronicity and bodily morphologic abnormality To this class belongs the process under consideration Our desire to know more about actual facts concerning disease processes,—disturbed physiology—has caused us to become more and more interested in the study of potential disease Could we successfully attack arthritis in its potential state, we might hope to cause its comparative disappearance from a community We are already seeing the effect of removal of infectious foci Here skill and caution are very necessary We should ever prod ourselves to improve those two very necessary qualifications which will enable us to interpret what we see and feel—conservatism and good judgment

Arthritis either in the potential or active state is a serious disease We should not let brilliant methods of cure lure us away from the more important consideration How can we on the large scale for the masses, acquire immunity against infectious processes in and about the joints

Before treating arthritis and infections by means of foreign protein we should first acquaint ourselves with every clue that will point to a better knowledge of its mode of action and its real limits of safety For this reason I am going to dwell for a few moments on the scientific data that have accumulated concerning the effect of non specific foreign protein and other inert substances, when they are injected parenterally

\* at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 5 1921

into the body for the first time, or soon thereafter

When I speak of the work we have done in our laboratory at the contagious hospital I refer to the members of my staff who have been interested in these studies with me. Doctors Greenthal, Hoag, Brown and O'Donnell, whose separate detailed reports have been published or are in course of publication

The following physical and chemical changes in the blood are induced by an intravenous injection of foreign protein

**Movement of the Cells**—A leukopenia<sup>a</sup> occurs early, within a few minutes. In some instances it may become marked. There is quite positive evidence that this phase of the leukocytic movement is brought about by positive chemotaxis,<sup>b</sup> attracting the leukocytes from the general circulation to the capillary circulation of the viscera particularly the spleen, liver, and lungs.<sup>a</sup>

In the course of time the leukocytes can be seen entering the general circulation, but instead of stopping at their former concentration they continue to increase until almost invariably a true hyperleukocytosis results. Careful examination of these leukocytes shows that for the most part they are new cells, many of them embryonic. A marked histogenic reaction has taken place and all the mesenchymal fundaments have responded including those of the nucleated red cells and platelets, large forms of the latter being frequently seen. Dr. Calhoun and I<sup>a</sup> were impressed by the comparatively few degenerating cells encountered during the reaction. This led us to think that the leukopenia is not due in great part to a destruction of the leukocytes.

It seems reasonable to believe that with the increase in these cells, and their determination to certain places in the body, that they carry

<sup>a</sup> **Leukopenia**—Wysokowitch<sup>14</sup> recognized leukopenia as early as 1886. In 1892 Lewis<sup>15</sup> (ibid) ascribed its occurrence to an actual destruction of the leukocytes to which destruction he also attributed hyperleukocytosis, due to stimulation of the dead cells.

Another view that the disappearance of leukocytes is due to the migration from the peripheral circulation to the visceral capillaries was shown by Goldscheider and Jacobs<sup>20</sup> in 1894 who induced leukopenia by the intravenous injection of extracts of spleen, thymus and bone marrow. Fwing,<sup>9</sup> in 1895 reviewing this subject in a rather convincing manner, substantiates this idea, and still Wells<sup>24</sup> in 1917.

Mechanical obstruction was offered as an explanation of this phenomenon by Silverman.<sup>2</sup> (Author cites all the literature.) He thought that the withdrawal of the leukocytes to the visceral capillaries from the general circulation was due to the swelling of the endothelial cells, which offering a resistance to the passage of the leukocytes through the organs caused them to be held back and to accumulate in large numbers. Fwing<sup>9</sup> reports the finding of similar endothelial changes in normal livers. Wells' observation that the blood coming from the splenic vein during the stage of leukopenia contains an increased number of leukocytes while that from the lungs and liver show leukopenia rather controverts this theory ingenious as it is.

<sup>b</sup> **Chemotactic Theory**—Many believe the determination of the leukocytes to the visceral capillaries is due to a negative chemotaxis and the subsequent hyperleukocytosis to a positive chemotaxis. The work of Wells however rather weakens this idea confirming the opposite view. When he injected living streptococci and staphylococci coincident with the time when the leukocytes were increased in the visceral capillaries the streptococci and staphylococci were also there. This corroborates the observation of Bull<sup>2</sup> and would seem to indicate a positive chemotaxis acting on the phagocytes and drawing them to the organs

with them then normal functions, which means an increase somewhere in the body of their products. So far it has not been shown that these products are not of an immunologic nature.

We have studied the effect of intravenous dead typhoid bacilli on red blood fragility and reticulation. There is no change.

**Biochemical and Chemical Changes**—It has been shown that there is an increase in certain immunologic substances after an intravenous injection of foreign protein, such as the non-specific and specific opsonins,<sup>c</sup> agglutinins, certain lysins<sup>d</sup> and cytases.<sup>e</sup> The bacteriolytic<sup>h</sup> power of the blood serum is not increased but the general bodily resistance is increased so that a killing dose of typhoid bacilli, for example, has no effect in a rabbit which has received within 24 hours an intravenous injection of foreign protein. The blood ferments<sup>e</sup> or cytases—lypase and protease—are increased and the antifer-

<sup>c</sup> **Opsonins**—Kibler and McBride<sup>21</sup> found the non specific opsonins increased after an intravenous injection of dead typhoid bacilli both in typhoid fever patients and normals. Culver<sup>22</sup> found them increased after peptone and gonococcus vaccine injections. Herman<sup>23</sup> showed that rabbits sensitized to a streptococcus show a definite liberation of specific opsonins and agglutinins after intravenous protein.

<sup>d</sup> **Lysins**—It has been shown by Black and Fowler,<sup>1</sup> and by Herman, that lysins are increased by intravenous or subcutaneous injection of foreign protein. It is noteworthy that there is nothing specific in this phenomenon. Thus, ten days after injection of sheep corpuscles into rabbits an intravenous injection of dead typhoid bacilli brings about a marked liberation of specific lysins (Herman). That is, a non specific substance increased a specific substance over the titer obtained in a sensitized animal before the injection was made.

<sup>e</sup> **Ferments**—Jobling and his co-workers<sup>27</sup> have shown that there is an increase in the non specific ferments—protease and lypase following an intravenous injection of foreign protein. The protease has no action on bacteria, but it is thought it reduces their protein split products to simpler non toxic forms. The action of the lypase is not clear. It may act on the lipid surface of bacteria. It is interesting to know in this connection that in certain diseases the blood lipoids are high, tuberculosis and leprosy—and that in these diseases the lypase titer of the blood is also high.

<sup>f</sup> **Anti Ferments**—Wright Jobling and others find a substance in the blood which antagonizes the action of the lypase ferments only. They also find that during certain disease processes—carcinoma—the infection index of the blood is low. At this time they find the anti ferment is high. The quantity of anti ferment seems to bear some relationship to the amount of an saturated blood lipoids in the state of high dispersion. Accordingly, anything that will increase the blood lipoids in high dispersion will increase the anti ferment balance, and vice versa anything that will decrease the blood lipoids will decrease the amount of anti ferment.

<sup>g</sup> **Lipoids in course dispersion** have no influence on anti ferment. It is also thought that increased serum lipoids are adsorbed to the surfaces of bacteria in a purely non specific way. It may be argued that this would protect the toxic products of bacteria from escaping into the blood.

Jobling and his co-workers claim that various substances injected intravenously—bacteria, kaolin, protein split products, and trypsin will be followed by a more or less marked mobilization of serum protease and usually of lypase. This reaction is more marked in animals. The anti ferments affect only the action of tryptic ferment so should a tryptogenic organism be present the anti ferment might act against its further development. This being the case its action differs from that of the protease which acts only on disintegration products of the organism. In the protein proteolysis there is first a decrease in the anti ferment, thought to be associated with the chill after which there is a rise. In this connection the work of Bordet and Warden and his co-workers on colloidal changes in the blood should be given careful consideration.

<sup>h</sup> **Bacteriolytic Effects**—It has been observed in a case of septic endocarditis in which the blood showed many organisms that soon after an intravenous injection of foreign protein (dead typhoid bacilli) the organisms disappeared from the peripheral circulation for a time returning again as numerous as before (Kinsella).<sup>2</sup>

Working with rabbits Bull<sup>2</sup> in 1916 came to the conclusion that intravenous injection of dead typhoid bacilli increases the bacteriolytic power of the serum by rapidly mobilizing the anti

ments<sup>4</sup> are decreased during the chill after which there is a rise. We have shown that intravenous foreign protein has no protective effect against a fatal dose of soluble toxin (diphtheria) in guinea pigs.<sup>5</sup>

**Blood Chemistry.**—We have made careful chemical analysis of the blood during the successive stages of a protein pyrexia. There is no change in the CO<sub>2</sub> tension of the plasma or urea of any appreciable amount. Jobling found little or no change in the non-protein nitrogen after intravenous dead typhoid bacilli. Pepper and Miller found no change in the total nitrogen urea and allantoin excretion. But after the injection of living bacilli they observed an abrupt rise in the nitrogen excretion which was made up chiefly of the allantoin fraction. We have been unable to show any appreciable change in the non-protein nitrogen. Hisanobu<sup>1</sup> found urea nitrogen, amino acid nitrogen and total non-protein nitrogen increased in peptone intoxication and anaphylactic shock.

There is a slight rise in the blood sugar record at the height of the fever. We have carefully worked out blood fat curves, which show a tendency to a fall in the total lipids during the pyrexia by the Bloor method. In some cases the decrease is quite marked.

**Anaphylaxis.**—In our study on blood changes consequent on the intravenous injection of dead typhoid bacilli Dr. Calhoun<sup>4</sup> and I were led to believe that the pyrexia induced was not of the nature of an anaphylactic shock. For this reason we did not call the reaction a shock reaction but called it a protein pyrexia. This view has been questioned. It would seem however, as time goes on that it is strengthened. So far as we have gone we have found blood cytology and blood chemistry different in each condition. We may ask a question at this point. How could the reaction of first injection in an animal or patient who had never received an injection of this substance be an organ allergen reaction? The time interval to

induce such a reaction does not obtain in non-specific protein therapy of first injection at least.

The very well conducted observations of League and McWilliams<sup>3</sup> in typhoid fever and also that of Rouse,<sup>2</sup> on the nature of the bacteria flowing in the blood stream in typhoid fever should receive careful consideration as milestones marking the way to a better understanding of immunity and blood repair mechanisms in particular.

We are dealing with an entirely different type of reaction. The fact that it has been regarded quite generally as a shock, or anaphylactic reaction has militated against further search of its real nature. It is questionable whether this reaction is an immunologic reaction as that term is generally understood. How could immunity be induced in an individual in a few hours time. As the substance injected is non specific it cannot fill the position of a passive immunologic substance. Foreign protein may mobilize immunologic bodies, it stirs mobilizes the engine. This is why the reaction has interested us. Many of those who have been working on colloidal dispersion, adhesion, etc. etc., have lost interest in non specific protein therapy because, for some reason or other they have been led to believe that the benefits from this form of treatment come from repeated injections which is not necessarily the case, and is accordingly anaphylactic in nature. A complex has developed—that any further knowledge on the nature of the anaphylactic reaction will explain non-specific protein therapy in infections.

The work of Bordet, Jobling<sup>12</sup> and Peterson Warden and his co-workers should be investigated in connection with this non immunologic non specific method of therapy.

Teague and McWilliams suggest a theory of the action of dead typhoid bacilli in typhoid fever which has a definite bearing on the subject in hand. Their work seems to show that the non specific protein causes in some unexplained way the accumulation of bacteriolytic substance in the lymph channels and thus brings about healing of the typhoid lesion.

It is common knowledge that most remarkable effects follow the intravenous injection of foreign protein in arthritis. It is also well known that certain cases, of apparently similar character at least are not improved. The element of uncertainty is great, as there are no constant results. While the miracles sometimes wrought are as great as those performed with salvarsan they differ in that we cannot produce them with any degree of positiveness. No uniformity of curative result has come out of our investigation thus far. For this reason it might be well to look to the clinic and consider the effect of foreign protein, or non specific therapy in infectious processes in general. Until we know how and

1. Liles. The following year Teague and McWilliams took up the investigation of this point in a particularly well conducted series of experiments. In brief they seem to have shown conclusively that intravenous injection of dead typhoid bacilli twenty-four hours before the injection of a fatal dose of living typhoid bacilli is right about no increase in the bacteriolytic power of serum of normal or immune rabbit nor would repeated injections have any effect. They thus confirmed the observation of Buxton made in 1905.<sup>8</sup> On the other hand they also show quite conclusively that an intravenous injection of killed typhoid bacilli given twenty-four hours before a fatal dose of living typhoid bacilli protects the rabbit. The protective power is not brought about by enhancing the normal bacteriolytic power of the serum. They call attention to the well known fact that it requires several days to bring about a typical immunologic reaction. Their observations on the progressive disappearance of living typhoid organisms from the peripheral circulation after an intravenous injection of killed bacilli are in line with the clinical observations on endocarditis referred to.

2. Cowie and Kempton<sup>9</sup> have shown that guinea pigs treated by intravenous injection of dead typhoid bacilli at varying intervals before and after a minimum fatal dose of soluble toxin (diphtheria) confer no protection whatever. Calhoun<sup>4</sup> shows similar treatment has no protective effect against the injection of a fatal dose of living diphtheria bacilli in guinea pigs. Both these authors however obtained protection in their respective injections with normal horse serum.



at what times and places the foreign protein produces its effects, we will be as ignorant of the proper method of using it in infections as were the earlier physicians in the use of quinine until the plasmodium was discovered and its life cycle known. Now we know that two well timed comparatively small doses of quinine will cure a double tertian infection.

The effects of foreign protein in typhoid fever have been observed for over twenty years. There is no question that in quite a large per cent of these cases the disease can be aborted or its course shortened, or made less severe. We also know that in a number of cases of pneumonia and influenzal pneumonia,<sup>6</sup> if the injections are given early, the temperature is permanently reduced and the process in the chest favorably influenced. I have observed a similar drop in the temperature curve in scarlet fever, and in erysipelas, with a temporary disappearance of the rash but there was no permanent improvement. I have gathered together a short series of cases which, in themselves, are too few in number to base any absolute opinions on, but which are sufficient in kind and nature to be of some assistance in the study of our problem, and I am quite sure of the final result in these cases. It will be seen that suppurative foci, furunculosis, gonorrheal vaginitis, suppurating mastoiditis, may be definitely influenced by foreign protein when other methods of treatment have failed. Most striking of all are the effects on conditions in the eye—iritis, panophthalmitis, uveitis, pneumococcus corneal ulcers, hypopyon ulcer, granulomatous hemotoma due to hemolytic streptococcus. These conditions can be so carefully and skilfully observed by the trained ophthalmologist that they seem of particular interest. For example, the process in the iris could be watched during and after each injection and the progressive changes for the better could be almost measured from day to day. It will be seen that even processes of long standing, in this locality, are quickly affected by the foreign protein injections, as for example, the pronounced granulomatous case of two years duration. Some, if not all, of these cases may have been previously reported by Professor Parker, who referred them to us for treatment.

Next come the cases of chorea, which are considered in conjunction with arthritis, because of their frequent association, and the etiology which seems to be the same. I have recorded 13 cases of chorea, varying from three weeks to seven years in duration, that is, frequent attacks extending over a period of seven years. There are included in this series chorea major, chorea minor, and hemichorea. There is unquestioned immediate improvement in 12 of these—92 per cent. That is, patients seemed better and movements were less marked after the reaction was

over. The movements were aggravated after the reactions in one case. Temporary improvement occurred in three. Permanent improvement, or what we might term a cure of the attack, occurred in 8 or 61 per cent. There was no improvement in 3 cases. By permanent improvement we mean the attack was definitely stopped. Some of these cases may have had recurrences, the knowledge of which has not been ascertained\* excepting in Case 9, which recurred two months later and was cured by an attack of measles. In this disease the question always presents itself: What would have happened had we left the patient alone under favorable conditions of quiet, rest, and food? And whether our primary rest period, which in some cases extended over many days, prior to the foreign protein treatment, did not have a definite influence, and the patient got well in the balance of time in spite of the injections and because of a continuance of favorable conditions. We can, however, say definitely that very frequently a pronounced beneficial effect is produced. For example, one of the chorea major cases, when shown in the clinic had to be tightly bound to the stretcher with a sheet, and when released it was difficult to hold him on the table for observation. This condition continued until a foreign protein injection was given, after which he became quiet. On the next clinic day, which occurred a week later, he was wheeled in as other patients are almost perfectly motionless. Nearly as striking, however, is the opposite effect when absolutely no impression is made by the use of foreign protein. When we analyze these cases further, we find that for the greater part it is the long standing cases that showed no improvement. Case 14 is a marked exception.

To this group of chorea cases I have added three that developed measles during the chorea. They did not receive foreign protein treatment for the attack. After the measles was full-blown, the chorea stopped and did not return. Here we have an illustration of the effect of an acute process on a subacute and chronic disease—which possibly is not at all incomparable with the acute process initiated by the foreign protein.

Last we come to a group of arthritis cases. What do we mean by that broad term when we talk about these cases collectively? Does the term mean as much to us as the term rheumatism which we have all been trying to discard? How are you going to class the rheumatic who shows no definite structural lesions? Yourself, for example, you are active to-day, you sit in a draught, you get your feet wet, or you have unwittingly suffered exposure. Very soon after this you become stiff in your muscles, in your spine, in your neck, fingers, joints, or extremities. This condition may last for a day or two and of itself

\* Time does not permit of a more comprehensive analysis of these cases.

go away, or it may recur and persist and be relieved by a salicylate, a hot bath, or an intravenous injection of foreign protein. Can we call this condition arthritis? Then, again, in typical arthritis, showing anatomical deformity in the soft or bony structures the patients are often comfortable so far as pain is concerned but on certain days or at certain times they will tell you "Doctor I have rheumatism to day." We all know what it means. There is a group of cases with this predominant symptom, without definite structural changes which we feel is benefited greatly by foreign protein therapy. These patients may also be benefited by something else, but we are interested in knowing why they are benefited by foreign protein and not in popularizing the method of treatment which is often very distressing and hard to bear. These cases have to be classed with the acute or subacute arthritis cases their chief symptom being rheumatism.

Next come the cases of acute rheumatic fever, acute articular rheumatism—with swelling, heat, redness, perhaps fever, migration and cardiac complications. Of these I have treated but few with foreign protein. I have personal records of cases in the hands of others whose judgment I trust, in which definite benefit came from foreign protein therapy. They are different from a similar process in children which goes on progressively from bad to worse resulting in marked deformity and permanent invalidism.

These cases are characterized by swelling, pain, fever, often of long duration and recurring migration, enlargement of the spleen, and lymph nodes, a definite deforming arthritis, with conspicuous absence of cardiac lesions and bone changes resisting all methods of treatment yet proposed even if taken in the earliest stages.—Still's Disease.

The subacute or milder chronic cases in my hands the ones I have seen the most improvement in, are very satisfactorily managed by this method of treatment. The element of uncertainty is present here and for that reason I feel that the surer way of a cure, that of the removal of surgical foci should first be tried. The valuable reports of Pemberton<sup>10</sup> and his associates should be carefully studied by all who are interested in the cure of arthritis patients. It is of interest to note that in this series of 256 cases there was a considerable percentage (26.75) in which no discoverable foci could be found. This is a group in which foreign protein therapy could be used very legitimately.

As a focus of infection not so frequently thought of and perhaps not so frequently a factor in arthritis we should consider the gall bladder. This fact was brought to my attention in an entirely unconscious way. I had made the diagnosis of gall bladder disease in a woman of 52 years. I was studying the bile samples by drawing after the Meltzer method. After the third drawing the patient informed the nurse

TABLE 1—EYE CONDITIONS

No.	Case No.	Age	Sex	Diagnosis	No. of Injections	Immediate	Result	Final
1	936	Adult	M	Following double iritis operation—resisting treatment 3 weeks	2	Marked		Cured
2	1750		F	Uveitis following operation—resisting treatment	1	,		
3	1776	62	M	Hypopyon ulcer traumatic 4 weeks duration	1			
4	2229	Adult	M	Corneal ulcers both eyes Pneumococcus — resisting treatment	5	,		
5	1244	52	F	Uveitis following cataract operation 4 days previous	2		Cleared up with synechia	
6	1071	Adult	M	Iritis purulent following cataract operation	1	No note	Auricular irrigation prevented further treatment	
7	1081	13	M	Phenolphthalein traumatic	4	Marked	Inflammation reduced Perforating wound of cornea made evacuation necessary	
8	701	8	F	Cranuloma both lids Strep. toxicus herpeticus canthi. loma resisted treatment 2 yr.	2	Very marked		Cured
9		Adult	F	Iritis—tuberculous	1		Bad hemorrhage into iris during reaction	
				MISCELLANEOUS CONDITIONS				
				Furunculosis of 4 months standing	1		Cleared up—no recurrence	
	10 C&C	9	M	Mastoiditis — double suppurating	2		2 dr. later discharge practically clear	
	7 C&C	2	F	Gonorrheal Vaginitis	12		Distinct effect Discharge cleared up Sept. 4 mo. later in occasional intracellular diplococcus	

that she could move her great toe and that it was more flexible than the other. Then I found out, for the first time, that for three years she had tried many measures to get her toe from what had been considered an ankylosed condition. It is now four months and there is no recurrence. Another case examined the same way is a woman of sixty, a music teacher. After the first drainage and particularly after the second, she volunteered the information that the treatment had made her fingers limber and that the stiffness had left her feet. She could now play more easily. Her gall bladder symptoms had overshadowed the symptoms of arthritis of which she made no

complaint or showed no evidence during examination. There was just the feeling of stiffness and clumsiness which was now relieved.

Not until after all foci of infection have been carefully considered should we think of the advisability of using foreign protein therapy. One might argue because of the effect on local infectious foci, as those of the eyes and ears and skin, foreign protein might in itself clear up an infectious focus, but the best practice is to eliminate a known focus first.

We learn from the clinic that it is the acute local processes that are benefited most. This, we think, also applies to typhoid fever which we

TABLE 2—CHOREA

No	Case No	Age	Sex	Duration Illness	Type	Possible Causes	No Injections	Immediate	Result Final
1	2311	51	M	1 year	Major*	Influenza	1 D T B 2 H S †	Noticeable	Unimproved
2	2374		M	9 months	Hemi-marked	Tonsils Typhoid	9 D T B 2 H S	Marked	Transitory
3	4860	12	M	1 year Pres attack 3 months	Marked Minor	Tonsils out 5 yr Mitral lesion	4 D T B	Marked	Permanent
4	4861	11	F	10 months	Marked Minor	Freq colds Scarlet at 5 Septic ton	3 D T B	Marked	Transitory at least Patient taken from hospital
5	4950	6	F	6 weeks	Major	Tonsillitis many attacks Scarlet Rheumatism	4 D T B	Very marked after 2nd injection	
6	5526	11	F	5 years	Minor	Tonsils out Adenitis Mit lesion	1 D T B	None	Taken home
7	4823	11	M	6 months	Marked Minor	Tonsillitis Arthritis Tonsils out Mit lesion	4 D T B	Movements exaggerated	Improved—but not permanent
8	4681	8	M		Marked Minor	Septic Ton	2 D T B	Very marked	Permanently Tonsillectomy after recovered
9	4512	8	M	attacks 2 yrs ago Pres attack 1 month	Major	Septic Ton Sore throat Pus tooth Mitral	3 D T B	Very marked	Cured attack See next record
9	4512	8	M	2 mo after 3d attack	Major	Foci still present	Measles	Marked	Cured as soon as rash came out
10	5740	6	M		Marked Minor	Mitral	4 D T B	Marked	Permanent
11	5378	8	F	3 weeks	Minor	Scarlet Tonsillitis Rheumatism Tonsils out	3 D T B	Marked	Permanent
12	5240	5	M	3 days	Minor	Rheumatism Mitral lesion	Measles		Cured in 3 days
13	5218	10	F	2½ mo	Minor	Severe throat infections Earaches Influenza	4 D T B	Marked	Permanent
14	5215	12	M	Repeated Attacks for 7 yrs	Marked Minor	Tonsils Scarlet	3 D T B	Noticeable	Permanent
15	5079	3	F	2 years	Minor	Tonsils	Measles		Permanent Eye tic remained
16	Jno		M	Few days	Marked Minor	Tonsils	3 D T B	Marked after 3rd injection	Permanent

\* Not Sydenham's chorea—probably encephalitis

† Horse serum D T B—Dead typhoid bacilli

TABLE 3—ARTHRITIS

No	Case No	Age	Sex	Illness Duration	Type of Arthritis	Possible Causes	No Injections	Immediate Improvement	Result	
									Final	
1	1451	40	M	1 ear	Chr Poly peri	Fistula in ano Operated	6	Marked	Improved—no pain	Adic to work ever since, now 1 year later before incapacitated
2	4201	10	M	3 weeks	Deforming, poly peri Stills	Infected thigh	5	Marked	Unimproved	
3	4462	4	M	8 months	Deforming, poly peri Stills	Tonsils large TB lungs	10	Marked	Unimproved	
4	4534	12	F	4 years	Deforming, poly peri Stills	Scarlet fever colds Tonsils out	7	Marked	Unimproved	
5	4553	12	F	6 mo	Deforming poly peri Stills	Tonsillitis	5	Slight	Unimproved	
6	5692	11	M	2 years	Deforming, chr poly bone chgs	Old pleuritis Tonsils	4	Slight	Unimproved	
7	Scat	11½	F	6 years	Deforming chr poly Stills	Teeth tonsils All foci removed	3	Very marked	Def improvement, but not permanent	
8	4617	24	M	Few dn	Acute poly peri	Tricuspid Cellulitis	4	None	Unimproved by DTB	Abcess in ankle discovered
9	Mrs V	51	F	Several years	Chronic Can't walk	Tonsils (Op)	2	Marked	Apparently cured—now three years	Cured
10	Mr C	58	M	8 weeks	Sub acute	Tonsils op	6	None	None	
11	Mrs I	54	F	1 year	Sub acute Rheumatism Stiff joints	No foci found	3	Marked	Much improved	
12	8 C&C*	48	M	12 years	Chronic Spinal Hypertrophic Chronic peri	Teeth Tonsils cured for	3	Marked	Much improved	
13	2 C&C	59	F	1 year	Deforming chr peri	Teeth tonsils Op no improvement	10	Considerable	Improved	
14	3 C&C	59	M	16 years	Deforming chr peri	Tonsils op No improvement	10	Very marked	Unimproved	
15	4 C&C	12	F	Many years	Deforming chr peri bone chgs	Tonsils not out	10	Very marked	Unimproved	
16	5 C&C	22	F	Recurrent attacks 1 year	Acute poly peri	Quinsy sore throat Tonsils op	3	Very marked	Improved	
17	6 C&C	22	F	4 years	Chr Hyper trophic	Foci all removed	3	Very marked	Improved	
18	7 C&C	54	F	4½ years	Chronic Atrophic	Foci all removed	3	None	(Pain) imp for short time	
19	Mrs B	48	F	1 year	Chr Mult spinal Radiculitis	Foci teeth Tonsils op	1	Marked	Improved	

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now consider a local disease. The work of Terzag and McWilliams<sup>23</sup> and that of Rouse<sup>1</sup> furnishes quite convincing evidence that typhoid is not a septicaemia in the true sense of the term but a local disease of the lymphatic system. Pneumonia is also benefited in the early stages, at least by the influence of something we think determines or mobilizes, the mechanism of defense to the affected part.

It will be further noticed that those parts to which there is a free blood supply are the ones that are most likely to be benefited by foreign

protein therapy. So the time and place have much to do with deciding our choice of procedure in the use of foreign protein in infectious processes.

**Dosage.**—We have probably uniformly employed larger doses of killed typhoid bacilli than most physicians. We seldom use a dose under 500,000,000 and children as well as adults have received billion doses. Our reactions are usually sharp and include the unpleasant symptoms of nausea, headache and sometimes vomiting. There has never been an untoward result. How-

ever, the work of others with smaller doses seem to show equally as good results as ours. That being the case, the smaller dose should be the one of choice. Foreign protein should never be used indiscriminately. I personally feel it is major medicine and should be carried on as any major affair is, the best of nursing, the best preparation possible for the patient's comfort, and due reference to his actual status from the standpoint of disturbed physiology and metabolism. A careful explanation of what is going to happen should be made to the patient. It is surprising how "rheumatic" people will be anxious for a repeated dose of foreign protein. I think it would be perfectly safe to fix the average dose for child or adult at 100,000,000 dead typhoid bacilli and the maximum at 500,000,000. Succeeding doses may have to be increased in certain individuals and in certain types of cases. There may be found a failure of response, and a gradual decrease in the clinical reaction with the same dose. On the other hand a marked clinical reaction may occur with the same size dose and a definite decrease take place in the blood reaction\*. Some have attributed the beneficial effects of foreign protein to the hyperthermia produced. This is still an open question.

**Caution**—Cardiac decompensation, acute cardiac difficulties,† and conditions associated with hyperthyroidism should be considered contraindications. It is also thought that intravenous protein injections increase gastro-intestinal peristalsis. Hence the importance of careful consideration before employing foreign protein in intestinal hemorrhage with the idea of increasing blood coagulability. Snyder (cited by Pemberton) has observed gastric hemorrhage during a reaction and I have here recorded hemorrhage into the iris during the reaction in a case of tuberculous iritis. The work of Dr Longcope<sup>16</sup> is frequently cited as a warning of the danger of inducing nephritis by foreign treatment. If this very excellent piece of work is consulted, it will be found that it does not deal with non-specific protein as we use it in infections, but with the effect of foreign protein on the kidney, when it is injected in the anaphylactic state, twenty to twenty-five days after the sensitizing injection.

If time and clinical observation is of any value in determining this important point I might say that months and years after foreign protein

treatment I have not encountered any bad results that could in any way be attributed to the treatment. The indiscriminate, unintelligent use of intravenous therapy is always dangerous.

Fear has been expressed that the foreign protein reaction might bring about bone marrow exhaustion in infectious diseases. Nagaó (*Jour Inf Dis*, 1920, 27, 327) is of the opinion that the appearance of immature leukocytes indicates exhaustion of the leukocyto-genic centers. It might be of interest in this connection to record a case of severe anaemia in an infant 1 year old in which a diagnosis of aplastic anaemia had been made, but which we could not confirm. The blood picture frequently showed the polymorphonuclears between 4 and 20 per cent. No improvement followed transfusion. There was an increase in cells which could be attributed to the cells added. Intravenous dead typhoid bacilli brought a quick response to 78 per cent leukocytes, and thereafter the blood condition improved rapidly. The suggested possibility of bone marrow exhaustion should make us still more conservative in selecting suitable cases for this form of treatment.

The whole subject of non-specific protein reactions is bristling with interest. Those induced by the body itself, those induced by substances we introduce into the body, and those induced by the destruction of abnormal tissues in the body by external means such as the X-ray. It is only possible in the allotted time to give a general review.

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\* See comments of Cowie and Calhoun<sup>5</sup> on this point.

† Miller<sup>18</sup> records having given intravenous foreign protein in several cases of septic endocarditis. He records no improvements but evidently no harm resulted. I gave as a last resort to a severe case of septic endocarditis 250 million dead typhoid bacilli without any appreciable effect on the pulse. Two days later 500 million with the same result no improvement. On the other hand in a severe case of acute polyarthritis complicated with a septic endocarditis in a young woman, an intravenous injection of dead typhoid bacilli caused marked relief from symptoms. Hemiplegia, however, occurred the following day. The possibility of this accident occurring had been fully considered. The reaction was completely over before the accident occurred but we have considered a definite relationship between the reaction and its occurrence, although the cardiac movement and the high temperature were improved.

**DIETETIC TREATMENT OF ARTHRITIS  
WITH SPECIAL RELATION TO MAX-  
IMUM FAT FEEDING \***

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**T**HE legend says that dead men tell no tales. But the bones of dead men do, and among the stories recorded is this: Pre-historic man had joint trouble. Such records naturally give us no idea of the therapy employed in those far off times. In fact even the fathers of medicine had little to say about the treatment of joint trouble and displayed unusual discretion in avoiding entirely the topic of dietetic treatment. Among the ancients the pathologic term "gout" was embraced in the collective term arthritis, under which every form of arthritic inflammation was included. The word "arthritis" of the ancients discloses nothing as to the etiology of joint inflammation. It was in the year 1800 that Lindre-Berrius expressly pointed out that arthritis was a distinct entity. Alfred Garrod in his celebrated book on gout proved that the deposit of urate salts which is found in the joints affected by gout never occurs in chronic arthritis. Although this differentiation of the two diseases dates back about a century and a quarter, still the earliest ideas of dietetic therapy relative to gout cling to chronic arthritis. It was only a little over a decade ago that authorities began to write strongly against employing the anti-gout diet in arthritis.

To quote briefly from Allbutt's "System of Medicine," published in 1905: "The question of diet is a most important one in connection with chronic arthritis; needless and injudicious restriction of diet tends to favor the progress and extension of the disease. This is a point on which it is impossible to lay too much stress for the superficial resemblance between arthritis and gout has given rise to a widespread impression that a dietary suitable for a gouty patient is suitable for the arthritic patient also. Thus the amount of animal food allowed is restricted or merely altogether forbidden. Experience shows that no greater mistake can be made than to treat the sufferer from arthritis as if he were an ordinary gouty subject. In arthritis the great need is to increase the patient's strength, or at least, to maintain it as far as possible."

To quote again and this time from Osler's "Modern Medicine" published in 1909: "In the minds of many of the laity and of the profession the cause of arthritis is supposed to be in some disturbance of metabolism. This is shown by the frequently given opinion that uric acid is the causal agent and by the common reduction in the nitrogenous diet. There does

not seem to be the slightest evidence from any source in support of this fact. Clinically, the results of a reduction in the nitrogenous intake are usually harmful, and these patients generally do better on a full nitrogenous diet."

"It has been suggested that some derangement in carbohydrate digestion may be a factor in some cases. Some patients are undoubtedly made worse by large amounts of carbohydrates, but this seems due more to intestinal disturbances. In general it may be said that there is only one regimen for patients with this disease, and that is full diet."

It is probably under the mark to say that one-half of the patients who have the disease to day are on a restricted protein diet and thereby being harmed. If anything is to be cut off from the diet it is usually better to reduce the carbohydrates, as many of the patients are subject to some digestive disturbances which are aggravated by too much of this form of food. As a rule the fats are well taken" (Pages 513-550).

These references to the different authorities show how they were trying to break down and get away from the tradition that hung about the treatment of joint trouble in general but that was applicable only to cases of gout. In a certain measure they succeeded but up to that time no one had revealed wherein the metabolic processes of the chronic arthritic were at fault, as had been done in gout. So the authorities were only negative in their statements, the substance of their treatment was not to prescribe anti-gout diet to patients suffering from chronic arthritis. What to do further than that they did not know, except not to let the patient starve.

It was about a decade ago that Pemberton of Philadelphia observed that, in the period of post-operative starvation which followed major operations on arthritic patients there was generally a distinct improvement in both subjective and objective symptoms. When these patients returned to their previous generous diets, there was sooner or later a return of their symptoms. Pemberton followed this lead in the dietetic treatment of his arthritic cases and soon found that restriction in diet particularly in carbohydrates was distinctly beneficial. In fact he showed by experiments that it was possible to induce exacerbations (in patients previously rendered free from the disease) by the feeding of pure carbohydrate. Again the diet was restricted in carbohydrates and improvement resulted. Such check or control, on a goodly number of cases is quite beyond dispute. Then, because so many of the old chronic arthritics are undernourished he carried the problem still farther and showed that fat was the least harmful of the three dietary ingredients and that fat in large amounts could be ingested with benefit, for his cases not only showed amelioration of symptoms, but they gained in weight.

From time to time Pemberton has reported the

results of his clinical work in a series of papers published in the *American Journal of the Medical Sciences*. During his army service, he was able to add to this clinical evidence the findings of careful laboratory work in four hundred cases. In the United States Army General Hospital No. 9 he carried on investigations of these arthritic cases from nearly every conceivable angle. From data there collected which bears directly on our topic he concludes in part: "In arthritics representing all degrees and stages of the disease it was found that there is a lowered sugar tolerance in a large proportion of severe cases, and this lowered tolerance is roughly proportional to the activity of the arthritic process. It returns or tends to return to normal with convalescence or recovery."

Experience with treatment by a restricted diet corroborated the conclusions previously published regarding it. Such therapy finds additional support in the studies on blood sugar, revealing a difficulty in the utilization of carbohydrate. It seems clear that success following this measure depends on catering to a weakened function of which lowered sugar tolerance is one evidence."

Thus he has shown that there is in arthritis a difficulty in the utilization of food as indicated by the therapeutic effect of a diet reduced in carbohydrate and by the great frequency of a lowered sugar tolerance, that fat while it cannot be used with impunity in treating those cases can apparently be used in many cases to meet, more or less, the loss of weight which would otherwise ensue, and in certain selected cases to meet it entirely or even to cause the patient to gain in weight. The results of such thorough and extensive investigations are convincing. Yet Pemberton realizes the limitations. He fears the unwise and extreme application of the dietetic measure and warns against considering it a panacea.

For three years we have been using these diets in our clinic for arthritics and have found them workable together with other measures such as removal of foci of infection, hydrotherapy, massage, etc. We have also made the blood studies, and our findings are practically the same as those of Dr. Pemberton, though our series is much smaller. Such work leads on to other problems.

For instance, can any rule be established for determining the level of a proper diet in a given case, for reducing the intake of sugar-producing substances to suit the capacity to care for it? Can we so adjust this diet to the anemic and undernourished that he will not only not continue to lose, but even gain, and can we still have evidence that he is caring for the food ingested? Can these things be done with distinct evidence to confirm and substantiate the clinical signs of improvement?

Such questions as these have suggested further metabolic studies.

Pemberton, in describing his method for de-

termining the proper diet, says, "The institution of a reduced diet in suitable cases is best achieved by determining over a period of about ten days the caloric intake of the patient under the average conditions of his invalidism. This gives an approximation as to the degree to which the caloric intake must be reduced in order to spare him a possible surfeit. If the determined intake is high, a rather sharp reduction can be established without detriment to his nutritional needs. If, on the other hand, the determined intake is low, much caution must be observed, and the procedure becomes more difficult and hazardous."

It has been known for a long time that diets high in fat and low in carbohydrate lead to a production in the organism of the so-called acetone bodies—acetone, aceto-acetic acid and B-hydroxybutyric acid. Recently considerable impetus to the study of these compounds has been given by the various men dealing with the problem of suitable diets for diabetics. (See Woodyatt, 1921.) At a meeting of the Federated Societies for Biology and Medicine in Chicago in December, 1920, Shaffer read a paper on the Oxidation of Fatty Acids in the presence of different amounts of Carbohydrate. (See Shaffer, 1921, a, b.) He found that in the oxidation *in vitro*, fatty acid did not yield acetone if the proportions of fatty acid to carbohydrate were molecular. If there were relatively more fatty acid than this, acetone bodies were produced. He reported at the same time experiments in which diets were fed in which this molecular proportion was maintained, and he found that these patients excreted only a relatively small amount—hardly more than mere traces—of the acetone bodies. The carbohydrate in these diets was not only that actually fed, but also that which the organism could derive from the combustion of protein and from the glycerol present in the fat. In these diets protein was fed in sufficient amounts to preserve the nitrogen equilibrium of the patient. The diet which he recommended and which practically fulfills these requirements is described as follows: 10 per cent of the calories are fed in the form of protein, 10 per cent as carbohydrate and 80 per cent as fat.

In applying the Pemberton dietary treatment to arthritics, it occurred to us that such a diet as this furnished an opportunity for feeding to a patient the minimum amount of carbohydrate, while avoiding possible complications of metabolism due to too large amounts of fat.

It is obvious, if the diet is to be controlled in this way, sufficient food must be given to maintain the body weight of the patient, otherwise he will make up the balance of his calories by burning his own reserve of body tissue, and this reserve is largely fat. In practice, we have determined the basal metabolism of the patient—using, in our work, the Benedict respiratory calorimeter—and have fed enough more calories than this to

allow for his probable activity. A reasonable increase is from 15 per cent to 50 per cent over the basal requirement. One case in which the activity of the patient was limited to being lifted from her bed to a wheel chair and being assisted in all other movements, a caloric intake of 20 per cent over the basal gave practically no change in body weight over a month. After determining the amount of calories to be taken, diets were fed which continued from 70 per cent to 85 per cent of the total calories as fat, while the carbohydrate varied from 20 per cent to 5 per cent. The calories fed in the form of protein were kept constant at 10 per cent of the total calories to maintain nitrogen equilibrium. The resulting diets were distinctly high in fat, but they were not too high to be eaten.

In connection with our dietary studies laboratory analyses of the urine for the acetone bodies were carried out. To study the effect of those diets on the acid-base equilibrium (as such diets might lead to the development of acidosis) the urines were also analyzed for total acid and ammonia, and variations in the hydrogen ion concentration were determined. The case selected for illustration is the most severe in our series.

Mrs. H., aged 28, as a child had short attacks of so called rheumatism "but never in the joints." Five and a half years before admission both knees were swollen and tender for a period of three weeks. This trouble promptly disappeared and there was no recurrence until about four years before admission when she was taken with a severe attack in both knees. This was three weeks after the birth of her first child. The hands, neck and jaw soon became involved and gradually the trouble extended to other joints until practically all were involved except the left hip. She succeeded in getting around by means of crutches for about three years. But for one year previous to coming to the clinic she was confined to her bed and chair, and was practically helpless.

Previous to admission her diet had been restricted in red meats and had been liberal in carbohydrate. Foreign proteins had been administered and the patient had undergone the baking process.

On admission, the patient's weight was seventy pounds, her height was five feet three inches. She was badly emaciated and anemic, and helpless because of swollen, tender, ankylosed joints. Her heart was normal. She had infected tonsils and one infected tooth. Several analyses of urine were negative. She was given arsenite of iron and put on a diet restricted in carbohydrate and protein and liberal in fat. In four weeks she had gained ten to twelve pounds, her haemoglobin had increased 15 to 20 per cent and she felt generally better though there was no improvement in the joints. At about this time the tonsils were removed and the diseased tooth extracted. The diet

low in carbohydrate and rich in fat was continued for several weeks, the only improvement being slight increase in weight and less pain. There was no improvement in joint function. It was at this juncture that we resorted to the more extreme diet, controlled as described above. We did not expect to benefit the patient, but we wished to add to our series as extreme a type of the disease as was likely to come under our observation. We wish to say now that the results were not as satisfactory as in other cases—but we report it because it demonstrates the metabolic effects of the diet better than any other case in our series.

Her total basal metabolism was 1,240 calories per day. Diets were fed affording calories amounting to 120 per cent of this, and the percentage of fat varied from 70 per cent to 85 per cent of the total calories. There was some increased excretion of the acetone bodies on all the diets fed, ranging from 88 mg. on the lowest percentage of fat to five grams on the highest. The amounts of acetone found are not high when compared with those met with in diabetes, but they convinced us that the more severe diets contained too little carbohydrate and this food was not reduced as much in cases treated later.

The effect of the diets on some of the other factors is worth mentioning. The excretion of ammonia varied almost directly with the excretion of acetone except in those cases where alkali was added to the diet, showing the response of the organism in an entirely normal way to the need for neutralizing the acid bodies formed. Variations in the hydrogen ion concentration and titratable acidity of the urine did not appear to be significant. There was some effect upon the alkaline reserve of the blood as measured by the alveolar carbon dioxide tension, an effect which could be prevented or remedied by feeding comparatively small amounts (sixty grains) of sodium bicarbonate in a dry. The feeding of sodium bicarbonate did not decrease the excretion of the acetone bodies but did decrease the excretion of ammonia and of free acid. Her weight remained unchanged throughout the study.

From our studies on the application of a diet containing 80 per cent of the calories as fat and 10 per cent as carbohydrate to arthritics such a diet appears to be a little too high in fat for practical use, but diets containing a slightly lower percentage of fat—say 70 per cent to 75 per cent seem well adapted to the need of the patient. We have fed such diets in a number of instances, and have not found that more than slight traces of the acetone bodies were excreted by any of the patients.

In each case the metabolic requirement should be determined and the response to the diet followed by urine analyses. In this way diets can be fed containing minimal amounts of carbohydrate while maintaining body weight.



the seat of colonies of bacteria. This can be done by the use of such drugs as bismuth subcarbonate or cerium oxalate. The best drug, and one which is absolutely free from chemical change under the influence of the hydrogen sulphide and other acids of the intestines, is the barium sulphate, which is used so freely in radiographic work. Barium sulphate is a heavy inert powder quite non-constipating, which can be given in doses of one to four teaspoonfuls, either by mouth or by rectum. If by mouth, it is usually mixed with the food at one meal a day, and if by rectum, it is given at the termination of the colonic irrigation, being mixed in about two ounces of olive oil. A radiographic plate of an intestine under this treatment will show the diverticula filled with the opaque barium, and it is not an uncommon experience to have patients volunteer the remark that they feel improved in their intestinal symptoms after a course of X-ray examinations.

The third indication in therapeutics has to do with the elimination of the toxins of the disease, and the correction of such retention of waste products in the blood as may be found in individual cases. The colonic treatment by irrigation with large amounts of water tends to bring about the desired increase of secretion from the kidneys. This can be increased by the use of a slow drop-by-drop instillation into the lower colon of water containing alkaline diuretics, after the manner first advocated in post-operation cases by the late J. B. Murphy. For this purpose, the use of an aqueous solution of acetate of potash, a drachm to the pint, has been found most efficacious. This can be used for the absorption of at least two pints of the solution a day. The use of alkaline diuretics also is indicated, and for this purpose the citrous fruits, especially lemons diluted in water and mixed with soda bicarbonate, make a palatable lemonade, which requires no sweetening. From three to six lemons a day are not an excessive number. In the cases characterized by the retention of uric acid, the methods special to the treatment of gout, are indicated. The drug, colchicum or atophan, up to 30 grains a day, may be added to the alkalies with advantage.

The fourth indication has to do with the treatment of the joints and the general symptoms of the infective process. The effects of the salicylates are, at times, very disappointing, and the use of large doses, as is so often a specific in acute rheumatic fever, is not indicated in this disease. Moderate doses, as acetyl-salicylate, in daily doses of from forty to eighty grains, and sodium salicylate up to thirty or sixty grains, help elimination in some measure perhaps, and also act as systemic antagonists to the streptococci in the blood, in those cases

which present febrile action and general malaise, but they are most useful in the lesser doses in combatting the local pains in the joints. The salol, as already described, combines the value of the salicylates and the intestinal antiseptics of carbolic acid. The treatment of the pain is often a difficult one, and will demand the use of the analgesic drugs of the coal tar series. Antipyrine in ten-grain doses, acetphenetidin in five-grain doses, pyramidon in five-grain doses, and, finally, the preparations of opium must often be resorted to in frequent doses. The local application of methyl salicylate, or of wet dressings of acetates of lead or aluminum, or of carbonate of soda with or without laudanum, will often prove of benefit. The use of dry heat and the fixation of painful joints for short periods only will frequently help to lessen the painful paroxysms of the inflammation.

The fifth consideration has to do with diet. In a chronic disease, too great a reduction in diet will lead to a malnutrition in itself. In arthritis there is no element of food to be absolutely eliminated. The diet should be general with the reduction of meat extractives, such as broths and of high purin-containing foods, such as liver and sweetbreads. An excess of carbohydrates also is to be guarded against, and a free use of water, especially between meals, recommended. No specific diet can be laid down, and the blood chemistry will give the best index for a dietary in the individual case.

The sixth therapeutic factor has to do with the possibility of specific vaccines and serum. Arthritis is not a disease that can be linked to the new fetsch of medicine, the endocrine functions. The attempt has been made, and treatment by the use of thymus and other ductless glands has failed. The use of specific vaccines and sera has had a greater success. But the work of Schulman and others has shown that the specificity of these preparations is at best doubtful. Schulman adopted the sterilized preparation of milk as his antigen, and reported even more favorable results in the treatment of gonorrhœal joints than usually follows the use either of gonorrhœal vaccine or of anti-gonorrhœal serum. The inference from these results seems justified that the action of all these remedies is that of a reaction to foreign protein and not a specific action at all. The protein of milk is recommended as a therapeutic agent because of its freedom from specificity, and because of the simplicity of its preparation. The milk is prepared for the purpose by skimming off the fat and then subjecting it to heat in an autoclave until the carbohydrate lactose is slightly charred and the resulting product has a light brownish color. This preparation is injected subcutaneously at five-day intervals in increasing dosage from one

to fifteen cubic centimeters. Each injection is followed by a febrile reaction and by general pains and malaise, of from twelve to seventy-two hours' duration. The use of vaccines made from the colonic flora, or from the typhoid bacilli involves the addition to the excretory functions of the patient, already burdened with the toxins of the arthritis of a dose of toxins of another and equally severe disease. There should be no reason why a patient suffering from arthritis should be given, in addition, a chemical typhoid fever or a chemical intestinal toxemia in order to increase the bacteriocidal powers of the body if the same thing can be accomplished by the addition of a non specific foreign protein, such as milk. A study of the treatment shows that the results are the same in kind with other proteins also, and that the use of foreign proteins subcutaneously is a very useful addition to any course of treatment of arthritis.

The prognosis in any case of arthritis depends upon the stage of development to which the disease has progressed when treatment is begun. In the advanced cases with erosion of joint surfaces, one can expect only an amelioration of the process and a cessation of the pain. In the milder cases a cure is possible though it must always be borne in mind that relapses are not only possible but probable because the absolute removal of the cause, involving as it does the permanent disinfection of the whole colon is a practical question of long duration and of great difficulty.

The treatment of arthritis comprises the elimination of all foci of infection by the streptococci and allied pathogenic germs, the overcoming of the growth of those germs in the blood and in the colon, the assisting of the elimination of the toxins of the germ growth, the caring for the painful joints and the alleviating of the general symptoms of the disease, and finally the supporting of the strength of the patient by an appropriate diet which shall not add to the poisons of the disease itself. Drugs are useful for all these therapeutic indications but there is no specific, and the disease must be attacked by a course of treatment of much detail.

## SPECIAL TREATMENT OF CHRONIC ARTHRITIS\*

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**I**N our present day knowledge of the cause of arthritis we are handicapped by the lack of accurate knowledge of metabolic processes, so that the treatment general or special, is not and cannot be standardized until such time

as we will know more about the underlying cause.

There is a lot of evidence to lead one to consider that arthritis is the result of the action of a slow poison, and that the poison comes from the individual himself, but whether that source is a ductless or other gland, a digestive fault or absorption from focal infection or other cause we can only form an opinion from the result of treatment directed to these particular offenders, and not to knowledge of the chemistry and the reasons why an irritant may cause joint changes in one person and not in another.

It seems to me that perhaps there has been some wasted efforts in attempts to classify the different form of arthritis, a nomenclature for the college teaching purposes is of course desirable but it does not help to relieve the patient nor does it assist materially in the treatment.

In this attempt to discuss some phases of the treatment of arthritis there will be no attempt to differentiate as to various classifications. Neither will the specific arthritis such as tuberculosis, syphilitic traumatic, etc., come under consideration. It is assumed that the chronic, slowly progressive forms of arthritis, by whatever name they may be known, proliferative, rheumatoid, hypertrophic, atrophic, or chronic rheumatism, may be due to some similar underlying cause and that the different manifestations in different people are factors yet unexplained.

Without any attempt to classify and name the different manifestations of chronic arthritis, the so called rheumatic affections it would seem well to consider the treatment under two heads, —preventive and palliative.

Of these two the first is of the greatest importance, and covers such a wide field that every doctor, no matter whether he is a specialist or not, must consider it a part of his duty to so instruct and advise as to lessen the liability of suffering from chronic rheumatism in future years.

Treatment of arthritis is not to be considered as belonging to the specialist. It is not a disease that can be cured in all cases by any one in any specialty, no matter how profound may be his knowledge of medicine. It is a disease that in our present knowledge of the cause often baffles the combined efforts of many minds, therefore, our efforts to prevent and to cure must be the result of co operation.

A great many of these cases progressively get worse even when a diagnosis is made early and a most persistent search has been made for the focus of infection or absorption, many cases progress even after the removal of known foci, many progress in spite of most careful regulation of diet or treatment by injections of sera. Drugs are of value in that they relieve symptoms. We are constantly reminded that we do not

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 5 1921

know the cause, and, therefore, the treatment cannot be accurate

We hear and read a lot about the tonsils, teeth, sinuses, ductless glands, etc., being the focus of absorption. We learn of the brilliant results which appear promptly following the removal of tonsils or teeth or thyroid, and these reports are true and are very pleasing to the doctor as well as the patient. We do not hear as often about these cases which do not respond to this treatment. Neither is our knowledge increased as to why a certain infection in one individual produces an arthritis and in the next possibly a neuritis, or an asthma.

Many cases, even incipient ones, are not checked in their progress by the removal and cleaning up of all known foci of infection. Is it not possible, perhaps probable, that the digestive tract is more often the causative factor, than we have thought?

These arthritis cases very often present symptoms of gastro-intestinal irregularity, with or without constipation, and stools are frequently of very foul odor. This irregularity may be due to many different causes, all tending toward an incomplete emptying of the bowel. It is mechanically probable that there may be areas of bowel content that may not change their location for a long time and that other material is continually passing by. The Barium X-Ray meal may not reveal the true situation. This may account for the extremely foul smelling stools of many of these patients and would seem to justify the thought that this delayed material may, by putrefaction and decomposition, liberate toxins, which when absorbed and delivered to the circulation would excite some sort of a reaction somewhere, and that reaction may be an arthritis.

Of all the sources of absorption it could seem that the intestinal tract might be found to be the most prolific cause of arthritis, and that if we can control and adapt the intake of food and drink to the needs of the patient and also promote normal excretion, we will do more to prevent arthritis than by any other means. It ought to be possible to study this probable cause from a chemical standpoint by experimental study of material obtained from incarcerated bowel content. It ought to be possible in the progress and refinement of chemical analysis to isolate a toxin that is capable of inducing an arthritis, and it should be possible at some time to experimentally produce a definite arthritis by administration of such toxin.

In our intensive study of the cause and the prevention of arthritis we should not forget that arthritis is only one of the manifestations of a very complex clinical condition, and that any study or treatment which is limited to the joint presenting symptoms, will fail. It would be of

great interest if we could know the effect on future generations of the improved hygienic and dietetic treatment. With proper feeding, correct amount of exercise, proper elimination, etc., arthritis ought not to be as prevalent in the future as in the past.

The problem of prevention of arthritis calls for the specialism of the physiological chemist, of the gastro-enterologist, of the bacteriologist, and the co-operation of all, and when, as a result of this combined special study of the cause of arthritis, we get definite evidence as to etiology, then and probably not until then will we be able not only to properly classify the different arthritides but also adopt successful preventive measures.

In the meantime, we always have these cases with us and we are required to do what we can to ease their suffering, mental as well as physical.

A large part of our treatment must therefore be palliative, treating symptoms as they arise, using our best efforts to prevent painful manifestations and in general to make existence pleasanter to a chronic sufferer. This treatment will often tax the ingenuity. Prompt results cannot often be obtained. The patient has become skeptical and all efforts to relieve may be made void by lack of co-operation. Our duty, of course, is to make use of any method which may be of value. Occasionally, results spectacular in their brilliance are gotten, and these help to relieve the monotony of the many cases which tend to make a doctor a pessimist.

If there is such a thing as special treatment of arthritis it is after much damage has been done and the disease is progressive. Treatment then becomes a continual effort to relieve pain, improve function, and prevent further deformity. In a general way all hygienic and dietetic measures should be continued. In many cases in spite of most careful treatment the disease is progressive and a great amount of the impaired function could be obviated by attention to the mechanics of the deformity.

Many of you who were in France, and observed the French peasants, noticed the prevalence of the "old man's spine," *spondylitis deformans*. Theory as to the cause cannot be founded on facts, but their mode of living, their damp houses, the general lack of hygiene, etc., may be the active cause of the trouble. This extreme "bowing" of the spine in *spondylitis deformans*, and the pain in the earlier stages can both be well controlled by the use of a rigid corset during the active stage before the spine becomes rigid. The lumbo-sacral region presents special difficulties in diagnosis as well as treatment,—first, it is often difficult to feel sure whether it is a true arthritis or the results of a trauma, or dependent upon a congenital variation of the bones, usually the fifth lumbar vertebra, from the average normal, producing unequal leverage,—a re-

ferred pain from abnormalities of pelvic organs, or faulty posture. Many cases are relieved by wearing an efficient pelvic binder and by special exercises directed to the muscles controlling posture, support of the abdomen, etc. Arthritis of the hip may progress in spite of palliative efforts and an operation to change the position of the extremity or ankylose the joint is the only way to relieve pain. The knee is more susceptible to treatment and also is more frequently involved. In acute conditions it is often necessary to immobilize the joint. Ordinarily, it is not difficult to decide when to immobilize. It is more difficult to decide when to discontinue and begin active motion. If immobilization is not attempted a distressing deformity of permanent flexion is very likely to occur with or without some ankylosis of the joint. If immobilization is too long continued adhesions in and around the capsule and joint may become firm and unyielding. In either case added suffering to the patient when attempts are made to get nearer normal function. Knees without acute inflammatory symptoms can be relieved by a support which will prevent extremes of motion. Many knees can be most efficiently treated and relieved by directing our attention to the feet. This statement is also true of many lumbar backaches—so that unless an arthritis of the knee or back can be explained by other findings the feet should be examined for faulty posture.

Probably all cases of arthritis which involves the feet and knees should wear arch supports and it will be found to be a difficult problem to construct these supports with just enough bracing and lifting so as to relieve the patient. This can only be done by making an accurate plaster of paris model of the feet and designing a special plate after correction of the model. Quite often it becomes necessary to make entirely different patterns and plates for each foot. The particular region of the foot requiring attention is the interior or metatarsal arch. The metatarsophalangeal articulations are enlarged, the first phalanges dorsiflexed and the terminal phalanges plantar flexed. Many cases present serious difficulties on account of adhesions and rigidity but if supportive treatment is instituted early deformity will be lessened.

For the hands and wrists—much can be done to prevent deformity by attention to the mechanics of the situation. Immobilization during the acute exacerbations, followed by diathermy or massage instruction in voluntary exercise to oppose contractions, etc., and so we might continue reciting various treatments of various joints. Each case will be found to present difficulties different from others and will require changed methods.

It is easy to criticize methods used in the past but it seems to me that the lack of appreciation

of the mechanics of the forces which produce the deformities is a very important and much neglected part of the treatment of arthritis, no matter how we may classify that arthritis, no matter how we treat it, if the disease is progressive deformities will occur, and early attention may mean better function and more comfort in succeeding years.

## PAINLESS NON-DISSEMINATING CHEMICAL REMOVAL OF INOPERABLE CANCER OF BREAST AND AXIL- LARY NODES, WITH REPORT OF THE FIRST FORTY CASES—1898-1920 \*

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**M**OST recent statistics of the outcome of purely surgical removal of operable cancer of breast are those of Brattstrom, of Stockholm appearing in *Acta Chirurgica Scandinavica* No 53 page 146, wherein are tabulated results obtained in a group of 212 cases occurring between 1905 and 1915. Of these there were 90 recurrences and deaths 45 recurrences still under treatment 14 unaccounted for, and but 63 non-recurrent.

These results of purely surgical intervention approximate closely those obtained by operators generally with a considerably higher percentage of good results at the hands of such leaders as Halstead, Willy Meyer, Downes, Lee, Coley and Hartwell at home and men of equal technical attainments abroad. Excision surgery therefore of cancer of the breast in early operable conditions, is still not sufficiently successful to meet the requirements of a perfect operation. When we consider that large group classified as inoperable we find excision wholly inadequate and impotent. Strenuous efforts are making to accomplish more definite results by means of X-rays and radium with encouraging results. That these potent physical agents will eventually control mammary cancer without operative interference is a 'consummation devoutly to be wished.'

Local dissemination through mechanical manipulation, incident to examinations and operations has been the chief barrier to success. Equally so has been the impossibility of knowing whether all cancer cells are removed from the floor of the wound. The author's chemical operation however, appears to have met these objections successfully. It has also for its object the solution of the problem of local recurrence but by means other than excision. The work is based upon surgical principles, governing the removal of cancer in general, namely avoidance of mechanical dissemination and re-infection.

Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 5 1921

traumatism, and the removal of all infected cells

Concentration upon cancer of breast was to develop in this particular type of the disease, a simple, painless and practical technique of chemical removal, to determine its scientific value generally, and to serve as a basis or starting point for its adaptation to allied types

Practically, the cancerous breast should be visualized as a sponge, saturated with fluids, holding detached infected cells in suspension. Pressure upon such a breast, however lightly applied, would result in onward displacement of such fluids. Intermittent pressure, as in examinations and excisions, would produce a pumping effect. Because of the valvular arrangement of the veins and lymphatics, expressed contents could only go forward and onward, fresh fluid from the affected area taking its place. Nor is this the most serious phase of a very objectionable procedure. Pressure undoubtedly precipitates showers of loosened infected cells, from the unencapsulated more or less friable masses, which could only fall into the vascular streams to be carried on as potential metastatic foci.

The chemical technique obviates all these undesirable effects, as in it mechanical dissemination is *nil*. In addition, an intense characteristic inflammatory reaction—according to Ewing, a most important part of the chemical process—sweeps through the tissues immediately underlying the chemicalized area corresponding to the floor of the usual amputation wound leaving it theoretically and practically, purged of infected cells. This is borne out by the result which shows a much larger percentage of local non-recurrence than by any other method, notwithstanding its almost entire restriction during the research phase of its development to the surgically inoperable case. This phase may now fairly be considered as terminated with the presentation of the following report.

The author's chemical operation had its inception twenty-two years ago. A brief history will serve to furnish the connection. On October 20th 1898, I was consulted by Mrs. R. aged 57, for far advanced broken down scirrhus carcinoma of the left breast, with two or three small fairly palpable axillary nodes, and no cervical involvement. This woman had kept her secret until her sufferings became unbearable, and had caused her to seek relief.

I strongly urged immediate excision, she persistently refusing, saying that she would die rather than to submit to an operation. She wished me to make some caustic application to her breast to cure her. I informed her that I was not familiar with such treatment had no faith in it, and did not care to experiment on her. However, in the end, she being an old-time patient, I promised to see what could be

done, as I could not conscientiously leave her to her fate.

In my search for something in the way of a caustic to apply to the breast, I found Marsden's formula for an arsenious acid compound, containing cocaine. This I applied, covering the raw surfaces and one cm. beyond. After three days of considerable discomfort, the application was discontinued and cataplasma applied, to hasten separation of the devitalized tissues. The wound finally cleared and healed over.

Four months later I was again summoned, only to find a full-blown recurrence, the condition, however, seemed very much worse than at first. I again urged immediate excision, and met with the same uncompromising opposition, with the request that I make further use of the caustic. I now felt justified in making a much more extensive application, including the entire atrophic mammary gland, which measured but 15 x 15 cm. in diameter. The compound was spread so as to include 2 cm. of tissues, circumferentially, beyond the borders of the breast.

With the aid of morphine, the patient was enabled to endure the pain fairly well. This time the arsenious compound was allowed in situ much longer than at first. Fortunately, the rate of penetration of arsenious acid, other things being equal, is not comparable to that of zinc chloride later adopted and part of the present technique or there might have been serious complications. As it was, however, destruction of tissues was just enough to include the fascia, and one-half the thickness of the pectoralis major muscle. Cataplasma were then again applied the slough thrown off, *en masse*, the wound clearing, and eventually healing by cicatrization.

As a most interesting sequel, this woman lived eight and a half years after this second removal with the arsenious compound, dropping dead suddenly while out shopping. The cause of death was chronic valvular disease, from which she had suffered, to my certain knowledge, for many years.

When this woman died, she was the picture of well-being and there was absolutely no sign of recurrence of the disease in the breast or elsewhere the site of removal being smooth and of normal hue. I had more or less regularly inspected this case, at perhaps half-yearly intervals, frequently taking colleagues along to see the result.

My conclusions from observations of this case were that if such a result could be obtained in one instance it could be indefinitely duplicated and reduplicated, if only a technique could be worked out that would overcome the many and serious objections to such a treatment. The Siren beckoned I followed and what I have to show you are results. I have demonstrated a

scientific principle, which, in the event of ultimate inadequacy of X-ray and radium, to as effectively meet similar conditions must stand as the foundation for non-disseminating, and locally non-recurrent removal of malignant disease

I have perfected a painless, safe and effective technique for the removal of the cancerous breast which has not more than a five per cent operative mortality, in inoperable conditions, and should have none at all in early or operable cases. It is a technique that can be applied at any stage of the disease, and knows no age limit. The treatment is well borne, and is moreover, gladly acceptable to any woman afflicted with this type of cancer.

The technique of the chemical operation is divided into 4 stages, viz.,

*Denudation,  
Gross Removal,  
Sphacelation,  
Skin Grafting*

In the first stage under general anesthesia, the mammary gland is denuded of skin, nipple areolar structures and fascia, leaving exposed the gland itself, and the para-lobular fat. This work is accomplished by the use of potassium-hydroxide, which the writer designates as the chemical knife, because of its power to rapidly sever or dissolve animal tissues. Axillary nodes, if present are enucleated at this stage, with the same chemical, the axilla being first uncapped by extension of the breast denudation.

The second stage is characterized by the successive applications of zinc chloride, in saturated solution, and the subsequent daily removal of devitalized tissues. Usually from six to eight such daily applications and removals are made.

The final plaque of devitalized tissues is left to Nature's processes of sphacelation. This line of demarcation is completed in the course of approximately, one week, when the sloughing plaque comes away, and the surface begins to clear itself. Soon healthy granulations cover the site of operation which is thereafter constantly bathed with a very abundant leucocytic exudate.

Usually by the end of the third week, depending upon the case the surface of the wound of operation presents a healthy granulating surface and is ready for the final step, of skin grafting following the technique of Thiersch. This process is almost invariably successful and leaves a fine cosmetic result. The patient is usually discharged by the end of the fourth or fifth week. Very bad cases of course, are correspondingly slow. There is no pain attendant upon the application of the chemicals themselves, if confined to their proper area, as is readily done by proper supervision, both at the time of operation, and throughout the entire treatment.

Coming now to the consideration of results

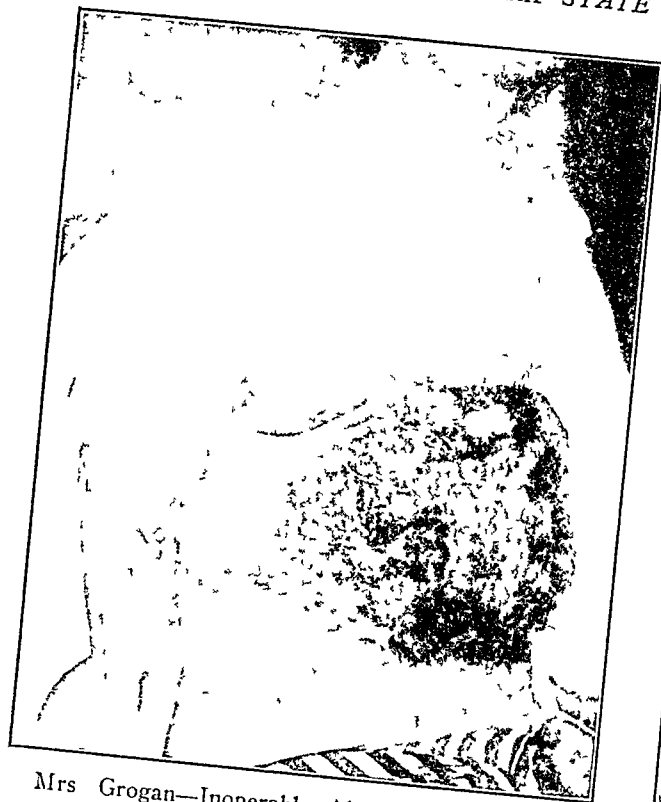
in the series of forty cases, here presented, we first invite your attention to photographs of a few of the breasts taken upon admission to the hospital, in order that the actual condition may be appreciated. This group is representative of the entire series and demonstrates the unfavorable and apparently hopeless conditions, under which the work was done.



Mrs. Novak—Inoperable Necrotic Alveolar Carcinoma



Mrs. L. Fanchoux—Inoperable Carcinoma Varia



Mrs Grogan—Inoperable Alveolar Carcinoma



Mrs C Murphy—Inoperable Necrotic Alveolar Carcinoma



Mrs Trucot—Inoperable Necrotic Alveolar Carcinoma



Mrs M Hall—Inoperable, Large-celled, Infiltrating Carcinoma

#### ANALYSIS

As to the pathology in these forty cases  
15 were of the soft or medullary type, all more

or less broken down, necrotic and excavated  
13 were of the hard or scirrhus type, long since  
broken down and more or less hemorrhagic  
4 were ulcerated and excavated fibro carcinoma  
4 were broken down necrotic epidermoid car-  
cinomata, with more or less en cuirassé  
condition of the surrounding tissues  
3 were bulky adeno carcinomata, but with the  
skin still intact  
1 was a necrotic carcinoma varia

## METASTATIC NODES\*

Axillary Nodes were present on affected side in 35 cases

Axillary Nodes also present on opposite side in 2 cases

Cervical Nodes were present on the affected side in 5 cases

Cervical Nodes were present on both sides in 1 case

## CHEST METASTASIS

Pre operative X-ray plates of the chest, in the twenty four Memorial Hospital cases of this series all showed metastatic nodes at the hilum of the lungs. In the remaining sixteen cases facilities for obtaining radiographs of the chest were lacking. In view of these findings it seems fair to assume that probably all of the forty cases had chest metastasis, as indicated especially by the manner of death in the majority of cases.

## SWOLLEN ARM

This condition was present as a complication in eight cases, the arm being more or less brawny and oedematous with impairment of motion, and varying degrees of brachial neuritis.

## Of the forty cases

22 eventually passed out in more or less prolonged coma from visceral and parietal metastasis

4 died of acute intercurrent pneumonia

2 died of chronic valvular cardiac disease

2 died of infection probably also of metastatic origin

2 died of chronic Bright's disease

32

Thirty-four of these 40 cases showed no evidence of local recurrence following the chemical operation. In the remaining six cases, there were such evidences although in effect scarcely more than such, being confined to diminutive patches hardly worthy the designation except for the sake of scientific accuracy.

These were the most advanced hopeless and discouraging of the series four being bulky broken down necrotic, foul septic conditions, while the remaining were far advanced scirrhus types. These cases were as follows:

*Galloway*, Mem file, 22450 Flattened area 12 cm in diameter, at inner edge. First observed five years after operation.

*Trucoat* Mem file 22978 two or three flat roughened areas in inner border each 1 cm in diameter. First observed four and one-half years after operation.

*Cantor* Mem file 22296 three almond sized ulcerating nodes, appeared in the upper two years

after operation, and remained stationary, the patient dying a year and a half later, of general carcinoma.

*Lohman* L, Mem file 25967, had unhealed area, the size of a silver quarter, which, however, remained inactive and did not spread. General carcinoma finally terminated the case.

*Novak*, New York Skin and Cancer Hospital. At the time of the operation, the growth was found to involve axillary ribs and pleura, hence was never healed.

*Silo* Mem file Oct 2 1918 disease involved the chest wall and pleura and never healed.

Where axillary nodes were not removed, at the time of operation, and after some years broke down remaining thereafter more or less stationary and where, in addition, the site of removal remained perfectly free from recurrence it seems that credit for non recurrence is fair. Of this there are two instances that of Mrs Bowman and that of Mrs Knowles. The former carrying such a node ten years it then breaking down the latter carrying a small node three years, but not interfering noticeably with her health.

Also there is the class of cases, in which it was found to be physically impossible to get under the disease, as in the cases wherein there is involvement of the chest wall and pleura, in which instances, the area could, naturally not be healed. The cases of Novak and Silo belong to this category. Here, again, the result should not discredit the operation.

Again in the case of Behrens there were some small roughened areas of a questionable appearance, giving the impression of keratosis, or fibrosis which remains so, giving no symptoms. Ascites from internal metastasis has supervened and the decline is rapid.

These five cases must be left for further classification to the individual reader. However making all possible allowances it will be seen that the results of chemical removal in the series of the first forty one cases thus treated, and confined, perforce, wholly to the inoperable cases yet shows the remarkable result of seventy-five per cent of local non-recurrence.

As to X-ray treatment in these cases —

With the exception of the four cases cited below X radiation was practically not used, except now and then in a wholly tentative way, as at the time the prophylactic and palliative value of these rays, as adjunctive to the removal of the gross pathology had not been stressed.

The four cases mentioned are —

*Trucoat*, Mem file 22978, X-ray prophylactic treatments begun at about four years after operation and continued more or less since.

*Cantor*, Mem file 22296 has post operative X-rays.

*Bowman*, Private file had three months progressing with the production of X-

\* Axillary nodes were first removed chemically on October 22 1915. The patient was Mary Trucoat Mem file 22976. Since then chemical removal of axillary nodes has become a routine part of the general technique.



ray dermatitis, on two separate occasions Ten years after the chemical removal of the breast, post-operative treatments were begun, directed to an axillary node that had been left in situ, at the time of the operation, and that had at this later period, broken down This was continued until she passed out, from her internal metastasis, two and a half years later

Behrens, Mem file 31930, had both pre- and post-operative X-rays, passing out two years and five months after operation, from metastasis to the abdominal viscera

Sixteen of this group of forty inoperable cancer of the breast have survived the chemical operation more than two years Of these

Bowman, age 45, bulky unbroken adeno-carcinoma, lived 12 years

Rogers age 59, old broken down scirrhus, lived 8 years 6 months

Lohman, D, age 49, necrotic alveolar carcinoma, lived 4 years 7 months

Cantor, age 59, necrotic alveolar carcinoma, lived 3 years 7 months

Francisco, age 67, inoperable scirrhus, lived 2 years 3 months

Berry, age 57, broken down scirrhus, lived 2 years 3 months

Henville, age 45, inoperable scirrhus, lived 2 years

#### THE SURVIVORS ARE

Galloway, age 57, necrotic alveolar carcinoma, ulcerous scirrhus (right and left breast), is *perfectly well* at 5 years 1 month Has small suspicious area 1x2 cm in diameter at the inner border of the cicatrix, which seems more like a keratosis than carcinoma

Rodman, age 42, old, far advanced, broken-down scirrhus carcinoma, is *perfectly well* at 5 years 3 months

Hutter, age 64, advanced inoperable scirrhus, is *perfectly well* at 2 years 10 months

Schneider, age 64, bulky, fixed, adeno-carcinoma, is *perfectly well* at 5 years 2 months

Trucot, age 47, massive, necrotic alveolar carcinoma, is in *fair health* at 5 years 1 month For several months has had three rather roughened, flattened areas, over sternal border of operated area, each approximately 15 mil in diameter Symptoms of advanced visceral metastasis quite evident Large nodular mass in axilla

Knowles, age 78, advanced, long-standing, inoperable, broken-down scirrhus carcinoma, is in *good health* at 5 years 10 months Axillary node, left at operation, but did not progress Family opposed to removal of node, on account of age Operated area free and smooth

#### SUMMARY

No	Age	Inoperable Carcinoma of Breast	Chemically removed on	Subsequent duration of Life in		
				Years	Months	Days
1 Rogers	59	Scirrhus (Ulcerated)	Oct 20, 1898	8	6	0
2 Goodspeed	74	Medullary (Necrotic)	Jan 10, 1907	0	6	24
3 Bowman	45	Adeno-Ca (Bulky)	Mar 20, 1907	12	1	0
4 Phelps	64	Medullary (Necrot)	July 13, 1910	1	0	0
5 Pierson	72	Scirrhus (Recurrent)	Nov 3, 1910	1	9	7
6 Barker	48	Medullary (Bulky)	May 14, 1911	1	4	0
7 Francisco	67	Scirrhus (Atrophic)	Jan 10, 1912	2	3	24
8 Berry	57	Scirrhus (Hemorrhag)	Mar 19, 1912	2	3	10
9 Tytler	64	Medullary (Alveolar)	Sept 11, 1914	2	6	7
10 Lohman D	49	Medullary (Alv Necrot)	Feb 4, 1915	4	8	14
11 White	79	Medullary (Alveolar)	May 27, 1915	0	0	18
12 Schneider	64	Adeno-Ca (Bulky)	June 5, 1915	5	5	Living
13 Cantor	59	Medullary (Necrot Alv)	June 14, 1915	3	7	10
14 Rodman	42	Scirrhus (Atrophic)	Aug 12, 1915	5	3	Living
15 Galloway	57	Med R Brst, Scirrhus Lft	Aug 14, 1915	5	3	Living
16 Trucot	47	Medullary (Alveol Necrot)	Oct 22, 1915	5	1	Living
17 Ahlbrecht	66	Fibro-Ca (Necrotic)	Nov 1, 1915	0	9	27
18 Hall, B	42	Scirrhus (Recurrent)	Dec 13, 1915	0	6	2
19 Dankenbrink	52	Medullary (Necrotic)	Feb 17, 1916	0	1	7
20 Grogan	53	Medullary (Necrotic)	May 14, 1916	0	6	11
21 La Fanchaux	65	Carcinoma Varia	June 5, 1916	0	8	14
22 Knowles	78	Scirrhus (Far advanced)	Jan 15, 1917	3	10	Living
23 Steradick	52	Medullary (Alveolar)	Apr 5, 1917	1	0	9
24 Murphy, C	45	Medullary (Alveolar)	June 13, 1917	0	6	23
25 Murphy, I	65	Scirrhus (Ulcerated)	June 19, 1917	1	0	17
26 Lennahan	61	Car Simplex (Necrot)	July 1, 1917	0	3	0
27 Hall	46	Alveolar (Large Celled)	Apr 10, 1917	0	3	0
28 Novak	64	Medullary (Necrotic)	Dec 5, 1917	3	0	Living
29 Morey	67	Scirrhus (Ulcerated)	Dec 11, 1917	0	2	0
30 Hutter	64	Scirrhus (Ulcerated)	Jan 8, 1918	2	10	Living
31 Rosenfeld	37	Medullary (Necrotic)	Feb 6, 1918	0	1	9
32 Henville	45	Scirrhus (Ulcerated)	Mar 18, 1918	2	0	6
33 Canning	58	Fibro-Car (Ulcerated)	May 28, 1918	1	9	14
34 Behrens	46	Fibro-Car (Ulcerated)	June 17, 1918	2	5	Living
35 Brown	51	Fibro-Diffuse	June 22, 1918	0	11	20
36 Silo	38	Epider Ca (Necrotic)	Oct 2, 1918	0	4	20
37 Lohman	35	Recurrent-Ulcerated	Oct 31, 1918	0	8	12
38 Friend	45	Car En Cuirasse	Dec 23, 1918	0	8	18
39 Kiersted	51	Scirrhus (Recurrent)	Apr 17, 1918	0	6	6
40 Vorhees	49	Car Simplex (Ulcerated)	Feb 6, 1919	0	3	7

Average length of life, as of December 1 1920 two years, two months and twelve days

72 184 329

Novak, aged 64 far advanced foul, undermined craterous necrotic medullary carcinoma, with axillary masses. In fair health at 3 years. In this case the growth had invaded the chest wall high up in the axilla. This area has therefore never healed and latterly has been making considerable headway. I have not heard from this case for three or four months.

Behrens, age 46 broken down fibro carcinoma, fixed to chest wall. Was in good health for two years then poorly ever since. In this case while the site of operation is free from recurrence visceral metastases and ascites is gradually sapping her vitality.

With exception of Trucot, No. 16, who passed away May 25, 1921, and Behrens, No. 34, who passed away on April 17, 1921, no other change is called for in the chart, as it stands, at the time of going to press, (some eight months following the compilation of these statistics, i. e., as of Dec 1, 1920), thus increasing the average length of life.

### Conclusions

*First*—That the fact that absolute freedom from local recurrence, in seventy-five per cent of my cases, and the almost negligible, indolent, non progressive, symptomless decidedly fibrous character, of the recurrent twenty-five per cent, calls for the most serious consideration of the profession, looking to the extension of the method to the early case.

*Second*—That the end results, or average duration of life following the chemical removal of surgically inoperable cancer of the breast comparing favorably with those obtained in surgically removed early or operable conditions, strongly supports the foregoing conclusion.

### Discussion

DR WILLIAM S. STONE, New York City. I am glad to be able to discuss this paper which has again brought to our attention in old method of cancer therapy, and which, until about the middle of the last century, was largely in the hands of charlatans. The evidence of its value was just beginning to be attested by numerous surgeons when the discovery of asepsis and an improved surgical technique gave the hope that the use of the knife would become more successful than it has so far proved to be.

The use of chemicals for the treatment of cancer was, therefore discarded without a scientific estimate of its value. We have evidence, however, from such men as Halsted, who noted the exceptionally good primary results that were obtained in a few advanced cases of mammary cancer that it is a method deserving of careful consideration by the medical profession.

Dr Strobell has developed the technique of this method in the treatment of cancer of the breast so that, within ten days or two weeks a bulky tumor can be removed with comparatively little pain or discomfort. The condition of the wound, immediately after the removal presents a remarkably healthy granulating surface to which the application of skin grafts is

almost uniformly successful. A histological study of the tissue after the application of the chloride of zinc shows an area of polynuclear leucocytic infiltration for an inch or more beyond the tissue destroyed. Within this area also, there is a marked thrombosis of the blood vessels which would appear to offer an effective barrier to the invasion of cancer cells, and which probably offers the basis for the clinical results.

In judging what Dr Strobell has accomplished by this method we must consider that so far this mode of treatment has been applied to inoperable and very advanced cases, for which surgery alone would appear to offer little, if any palliation. With such unfavorable material Dr Strobell has, in a few instances effected an apparent cure, and in numerous others, the marked relief from symptoms and the improvement in the general condition of the patient for varying periods of time have been striking.

It is the opinion of all of us who have observed his work that it has been a distinct contribution to the treatment of mammary cancer and it is a method well worth considering in numerous cases as a substitute for either the knife or the physical agents—X-ray and radium, which are now being so widely applied.

### ANTHRAX IN INFANCY AND CHILDREN \*

By GEORGE DOW SCOTT, M.D.,  
NEW YORK CITY

IT is with something akin to fear that I approach the subject of this paper, for I travel over a rough road, one but little broken by research and writing. Whereas much has been recorded of human anthrax in the adult less, if practically anything at all, has been apparently reported of the same disease in infancy and childhood. Anthrax in the adult is usually of direct, in the young, of indirect infection. The average professional and lay mind has been and is now, I fear, quite apathetic on the whole, not only to the dangers of the indirect mode, but also to the causes of direct inoculation and resulting septicæmia. Yet during the months of 1915 and in the early part of 1916 there sprang up such a number of cases, says Dr John B. Andrews, that public attention was forcibly drawn to its existence, for at that period New York and Massachusetts felt its iron imprint, and their mortality rate was high.

Since the dawn of the centuries anthrax originally and now, for the most part, an animal infection spread to and by animals has during this wide interim so transplanted itself upon humans that it has ploughed a death furrow through their ranks. While anthrax in

\* Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4 1921.

the past has been extremely fatal in adults where physical, physiological and bacteriological agencies have throttled its invasion somewhat through anti-bodies and other defensive forces, and while even crude and ignorant surgical and medical procedures have abetted them, in the young with these self-same forces unripened and in their immaturity, death has found ready victims. Literature upon the subject of human anthrax has been abundant from the *Saevisima Pests* of Virgil onward to the wool-sorters' disease of our grandfather's time and down to the modern more appropriately affixed title of anthrax. It is not within the scope of this paper to present a history of human anthrax plagues which have devastated Europe, possibly from a remote period even before the first authenticated outbreak of 1613, nor to discuss the ravages of the animal prototype which have swept among other countries in our own time, Russia and Italy, Siberia, Persia, Asia Minor, Egypt, Thibet, China, Japan, and other European and Asiatic countries as well as those of South America, or to bring to mind animal anthrax epidemics along the Mississippi Valley, in the Gulf States, on the banks of the Delaware and in some of the Eastern and Western States of our own country. Nor does space permit me to chronicle the would-be scientific gropings of enthusiastic, altruistic patient men towards the pathogenesis of human anthrax from the latter half of the eighteenth century when it was called splenic fever down to the French charbon and the German milzbrand. But it may be of interest to state that way back in 1769 Fourmier of Dijon published an ambitious document called *Charbon Malin*, in which the connection between different forms of anthrax was discussed. It was not until 1849 when scientific men found that the symptoms of anthrax were identical in animal and man. We are indebted to Robert Koch, however, for our present knowledge, for in 1876 he not only found that the little threadlike motionless bodies about twice the size of a blood globule discovered by a French physician, Davaine, were anthrax bacteria, but furthermore demonstrated that these organisms passed through the stages of bacillus and spore formation, and Pasteur soon after proved that these bacteria and not the blood must be the infection distributors.

Modern bacteriology teaches us that the bacillus anthracis is a relatively coarse, rod-shaped body  $1/5000$  to  $1/25000$  of an inch in length and about  $1/25000$  of an inch in diameter, non-motile, spore former, usually encapsulated. Bacilli reproduction takes place rapidly in the blood and other fluids of the body by fission, the original body becoming longer, and dividing into two or more parts, each

being an exact counterpart of the original parent. This bacillus proliferation takes place in the presence of water, nitrates, carbohydrates, oxygen, and minerals at a temperature of  $53.6$  and  $113^{\circ}$  Fahrenheit. In culture formation this micro-organic body is in zooglaucous mass and is aerobic. If deprived of oxygen or subjected to putrefactive micro-organisms in the soil it quickly dies, its spores, however, lasting for years. These spores do not form within the blood of the diseased animal, as this blood lacks free oxygen. The death point for the bacillus is  $70^{\circ}$  C in moist heat. A temperature of  $100^{\circ}$  C is required, however, for the spores for five hours, or dry heat for three hours at  $140^{\circ}$  C. Bacteriological specimens should be taken deep down in the lesion as early as possible in the disease to avoid pyogenic contamination.

In the diagnosis of anthrax the chief difficulty lies in the microscopical differentiation of true anthrax and the bodies similar to it, for the bacillus of symptomatic anthrax and that of malignant oedema are almost identical, and many other anthrax-like organisms are also. In the examination of plate cultures directly with a high-power dry objective the minute structure of the suspected colony can be recognized. A true anthrax colony has a fuzzy appearance, irregular contour with filaments resembling the Medusa head.

The spores are extremely persistent and resistant and, quite unlike the bacilli creating the disease, are extremely obstinate to conquer. They can subsist for years entirely devoid of nutritive material, while the bacillus un-nourished soon dies. In fact, Dr Andrews quotes Dr Rebertsch as saying, "that the spores retain their virility even after seventeen years." One can easily understand the catastrophic condition of the soil preceding epidemics from the excreta of anthrax-infected animals. According to Dr Andrews, the spores are unaffected by antiseptics, and he quotes Mammack as stating that even catgut prepared from the submucosa of the intestine of infected sheep has been shown to defy all the elaborate preparation of modern surgical technique and can still convey anthrax infection to a wound.

In my early student days human anthrax was considered of a fatal character for the reasons particularly that the patient came too late under proper medical care, possibly partly through self-ignorance, or through more commonly faulty or procrastinated diagnosis, or that he most probably succumbed to the wholly inadequate medical and surgical procedure of that period. In fact, though the first case of human anthrax in this country was undoubtedly observed in Philadelphia in 1834, its correct diagnosis was imperfect up to 1881, for before that period many typical cases were

reported under the misleading names of furuncle, diphtheria, malignant oedema, infected varicella, black crsipelas, carbuncle, malignant carbuncle, and cellulitis. Even today I fear many, many such anthrax cases pass to their long rest unrecognized, as Dabney and others so strongly suggest. Now while, as before stated, anthrax is a disease primarily of cattle such in particular being sheep, horse, goats, dead or alive, and is transmitted to household pets, such as cats, dogs and certain kinds of game—the fowl are almost entirely free from its ravages. And while anthrax is directly transmitted from the carcasses of such animals, the micro organisms lying in the blood clots as are used in the tanning and dyeing industries to workers in such pursuits as hide handlers, tannery employees, wool sorters, hair workers, brush makers, veterinarians it is in directly conveyed by them to longshoremen, paper makers, carpenters, steamfitters, farmers, hiverymen, ranchmen, even to customs house officers and the like, and from these two classes, as well as from sources wholly unknown and overlooked the young—the working theme of this paper—are mysteriously inoculated. In truth, it was the mysterious and wholly hidden intermediary factor in the cases recorded in the appendix of Dr Smith and myself, which inspired this paper. Many contributing causes are not so hidden, for the anthrax bacillus or its spores can be conveyed through clothing, insects, shaving and hair brushes through woolen articles, or through dust. Research shows that infants and children have been inoculated from household pets feeding off the bodies of anthrax-infected animals and afterwards biting or nipping their little playmates. And it was both interesting and illuminating to note the peculiar mode and site of inoculation of the many little patients infected sites almost anywhere, such as on the neck, under the ear, on the face, lips, cheeks or hands, arms, chest, ankle, nose, buttocks, eyelids, thigh and even on the abdomen. And not only the manner of inoculation is instructive and the mysterious cause of the disease among the young, but also its extremely fatal termination. In one case, a baby of four months old was struck with a fly swatter in the hands of an older child on the lips, breaking the skin and killing the fly at the site of infection. Positive cultures of anthrax were made from the baby's nasal discharge, the diagnosis being made too late, however, to save life.

In the other case a boy infant of twelve months was scratched on the leg by a pet dog. A short time before the dog had fed on an anthrax-infected sheep. The infant died.

Dr Joseph Lanahan reports a case of a boy, fourteen years old inoculated on the scrum

with resulting death. There were no anthrax cases in the neighborhood, and the infecting agent was absolutely unknown.

Only one case of re-infection was found that of a child which re-infected itself from the neck to the cheek. Original source of infection unknown.

Without quoting mortality statistics from other countries, but presenting briefly a few recent ones of our own country, I found that during the eight years from January 1 to December 31, 1917, no fewer than 222 persons were reported as having died of anthrax in the United States registration area. Three of these were school children, three were boys of three, seven and fifteen years, a little girl of six, and five infants of twelve months or younger. Another death was that of a chore boy of sixteen years. In New York State between March 1, 1915, and April 1, 1916, 27 cases were reported, fifteen were fatal, and twelve recovered. Three children were among them, and all three died. In Pennsylvania among the cases reported two were infants of ten and twelve months, respectively.

In summing up my investigations it would seem that the older the patient the more likelihood of cure and that the greatest mortality seemingly occurs during the months of March, April and May.

In the large number of cases of anthrax under observation I found the constitutional symptoms both varied and interesting. There were in some cases chills, pain, weakness, prostration, nausea, vomiting, cyanosis, cough, dyspnea, hyperemia, skin rashes, serum sickness, and other minor conditions.

As to duration of illness and quoting thirty-two cases of anthrax, most of which were of adults, from a Philadelphia hospital, I find five cases terminated fatally under one week, one case under three weeks, while eight cases recovered under four weeks, four under five weeks, five under six weeks, three under seven weeks, and one over two weeks. Identical studies of only infants and children I was unable to make.

Anthrax infection is of four kinds. First, the malignant pustule, second, malignant oedema often resembling erysipelas, third, the pulmonary type, and fourth, the gastro intestinal.

In the first two forms the disease is contracted through abrasions of the skin in the two latter invasion is gained through inhaling the bacilli in dust or through the medium of infected food. These two latter types I have never seen and could not easily diagnose and shall, therefore, not discuss them. By far the most prominent type is the first, and in the cases personally observed, and in scores reported by others this form, with perhaps a

secondary persistent and often malignant œdema, was the only one noted

There are of this type above mentioned four common stages of development. Soon after infection there arises a burning itching sensation at the site of inoculation succeeding which in twelve-seventy-two hours is seen a papule, in twelve-twenty-four hours thereafter an inflammatory vesicle, which in turn is followed by a serum-filled bleb. There is present a co-existent extreme induration of all surrounding parts combined with severe constitutional symptoms. A sero-fibrinous inflammatory stage with resulting tissue necrosis follows. Usually after one or two days the vesicle degenerates, and on its site is observed a plaque or crater with hard indurated edge about the size of a quarter of a dollar, or perhaps smaller, oftentimes approximating the size of a ten-cent piece, with a green-black, brown-black, or dirty greenish center. Small conical vesicles lying on an inflammatory indurated base surround it. Adjacent lymph glands are sometimes involved with subsequent pain, œdema or abscess development. A prostrating toxæmia takes place and death ensues from septicæmia, for the toxins cause a paralysis of the respiratory center and the capillaries are engorged with bacteria. Gradations in the stages of development may, however, occur in individual cases. In desperate and in fatal cases of human anthrax the body is quickly discolored, a general purpura resulting. Hemorrhages occur in the internal organs and into the body cavities. The spleen is enlarged, and there arises a cloudy swelling of kidneys and liver.

The old adage that "an ounce of prevention is worth a pound of cure" is true, of course, in every disease, yet in the mysterious, insidious manner in which anthrax is transmitted through unknown and unrecognized channels, and where infants and children are infected in localities miles away from contracting sources, where parents, guardians, playmates and playthings would seem never to come in contact with these sources, strange to say, modern treatment, provided the disease is early recognized, is positive, while prevention is to a great extent unknown. For there is a strong ring of extreme pessimism in the voluminous reports on the disinfection of hides by the Bradford Anthrax Investigation Board of England, in the investigations of C. H. W. Page and Legge, English authorities, in the results obtained by the United States Federal Bureau of Animal Industry as well as those of the National Association of Tanners, and by the American Leather Chemists' Association, and also in the probings of English, German, Italian, French and American investigators. The task of finding an adequate and practical disinfectant for all types of

hides, foreign and domestic, says John B. Andrews, is greatly complicated. Various kinds of hides require different methods of treatment, and the cost of the disinfectant and the time of exposure necessary for destroying the bacilli and spores is also important in that an expensive disinfectant, or one acting only slowly, will be rejected by the manufacturers, for the disinfectant used may mutilate, destroy, or else exert no aseptic action whatsoever upon the bacilli and spores in the infected material.

On studying the problems of treatment we find that the physical condition of the patient, the age, and sex exert a powerful influence upon the treatment, as in most diseases.

The methods in vogue both in the past and at the present time are as follows:

(1) Incising the lesion thoroughly, (2) cauterization, (3) sero-therapy.

However in the primitive past anthrax has been treated by the application of oak bark, lemon juice, tobacco leaves and roast onions. Although incision together with accompanying remedial agencies have undoubtedly cured adults in the old days, the knife is of great disadvantage in that it permits the bacilli to enter the blood stream and lymphatics. In Russia, Siberia, Persia, and in Asia the actual iron cautery is employed, while in England following excision pure carbolic acid followed by alcohol and powdered ipecac were formerly used. In other parts of the world electrical cauterization is practiced. Sero-therapy, the last form of treatment mentioned, has superseded all others, and in infancy and childhood the only form of treatment advised, while incision, excision and cauterization are absolutely contraindicated. Sclavo in 1897 was apparently the first to use a serum prepared from animals after combined passive and active immunization, and in 1903 treated with this serum 164 cases, with only two deaths resulting. In fact, Italy, France, and England have used the same or a similar serum for many years.

In 1915 Adolph Eichhorn, of the U. S. Bureau of Animal Industry, first prepared a serum by making a preliminary sero-vaccination (Pasteur method), and at regular intervals he inoculated the animals with virulent anthrax cultures. Fourteen to sixteen days later he collected the serum, using it for injections in man. He then advised 30 to 50 c c injected intravenously in advanced cases, doses to be from six to eight hours apart, or subcutaneously 40 c c may be given, preferably in four to five places in the body, and repeated after twenty-four hours with injections of 25 c c. Of the globulin preparation or spore vaccine 10 to 15 c c can be given intravenously. The anaphylactic reaction is minimized if other types of proteins are absent. The globulin preparations contain antibodies in concentrated form and are of great therapeutic value. In fact, Zenkowsky

and Detre have used them with excellent results, while Sobernheim recommends the use of serum and vaccine intermittently. And quite apart from the serum and vaccine treatment Dr R. Kraus, of Buenos Ayres, injects intravenously normal ox serum heated for one half hour to  $132\frac{1}{2}^{\circ}$  F. Apparently this form of treatment does not produce serum sickness while the use of the horse serum owing to its specific protein reaction, does. Autogenous vaccines made from deep seated wound material also have been used successfully by many. As medicinal adjuvants may be cited iodine, phenol sol of mercuric chloride, and Dakin's solution, but much stress must be laid upon diet, bathing, air and moderate exercise, combined with a reconstructive tonic.

Dr A. N. Bell many years ago made the significant statement "Of all the diseases that man is heir to there is none in which an early diagnosis is more important than in malignant pustule."

There is no disease, to my mind, where the infecting agent is often so hidden, so indirect, where innocent children suffer so much from faulty early diagnosis and from an unknown incubation period. No scourge of late years has so mysteriously and insidiously propagated itself upon the young as has anthrax. With their physical and physiological forces still in formation, with their defensive forces still immature, is it surprising that infants and children in ever increasing numbers for want of early efficient treatment, founder under the almost overwhelming pathological invasion of this modern octopus? In many cases investigated I found that the investigators had to be content with the hearsay of the attending physician, no bacteriological examination having been made. Under such conditions the positive diagnosis of anthrax cannot be accepted.

#### APPENDIX

The following two cases for which I am indebted to Dr William R. Smith, of Bellevue Hospital, shows, as in many such cases in infants and children, the unrecognized source of invasion. Harry Droge, age 16 years, clerk, nativity Russia (Has been in the United States since infancy).

Admitted August 19, 1920 discharged September 1, 1920

Past history and family history of no particular significance.

**Present Illness**—Four days before admission he noted a small blch on his face (Tuesday, August 17, 1920). This increased in size, and the next day his face had swelled considerably. He went to a physician, who gave him some black salve to apply locally. This did him no good, so he visited another physician and still a third physician before getting any help. The third man referred him to the New York Hospital, from whence he was sent to Bellevue.

Patient is 16 years old, and shaves but once a week. He does not recall having injured this part of his face in any way while shaving. In his work he does not handle furs, hides, or skins, is not around horses. He does, however, handle some celluloid.

**Physical Examination**—Negative, except for local condition.

**Local Condition**—On the right cheek there is a round ulcerated lesion, surrounded by a ring of vesicles. The whole side of the face, extending down on to the neck, is very much swollen and cedematous. The eye on this side is closed tight as a result of the edema. There is a slight serous discharge from the center of the ulcerated area. This area looks as though it contained a small amount of slough in the centre. The nodes at the angle of the jaw are enlarged and palpable but not painful. There is practically no pain in the face. Patient has a slight headache and is slightly stuporous. All in all he looks very toxic.

#### Diagnosis—Anthrax

August 19, 1920—Smear taken from pustule. Diagnosis, anthrax. Culture of wound and blood culture taken. Serum started q 4 h.

August 20, 1920—Culture from wound. Anthrax isolated in pure culture. Blood culture sterile after 24 hours. Serum continued q 4 h.

August 21, 1920—Blood culture sterile after 48 hours. Serum continued q 4 h.

Oedema very markedly decreased. Right eye now open, patient feels very much better.

August 22, 1920—Blood culture still sterile (72 hours). Culture from wound taken yesterday shows a few degenerated organisms. Serum continued. Patient's condition much improved, swelling markedly decreased.

August 23, 1920—Culture from wound taken yesterday shows no anthrax. Serum discontinued. Patient says he feels "fine." Seems very much improved.

The shaving brush used by the patient previous to illness, and examined by Dr Herman Gerber was found to be infected with anthrax spores (virulent).

Serum sickness started on the seventh day in the hospital, worst on the ninth day, and practically gone on the 11th. Serum sickness consisted of severe urticaria, with slight nausea. Patient was very greatly relieved by seven minim doses of adrenalin chloride repeated at about two hour intervals for five or six doses. One small dose of morphine ( $\frac{1}{8}$  of a grain) was given one night, and several doses of codeine in  $\frac{1}{2}$  grain doses were also given during this period. Pain in smaller joints on and off for two weeks after discharge.

The temperature ranged from 102.5, gradually descending to normal while the pulse rate never ascended above 90. The urine examination was negative.

Patient sat up in a chair on the tenth day for several hours, was up all day on the eleventh day, and was discharged from the hospital on the thirteenth day. At the time of discharge there was an ulcerated area on the right cheek about 1 cm in diameter. Patient returned for dressings several times, and his face finally healed with a very small dimpled scar, which is practically unnoticed from a short distance.

Serum given q 4 h day and night, 40 c c intravenously, 10 c c locally.

Arthur Saldana, age 14, school boy, nativity, Porto Rico.

Admitted September 13, 1920, discharged September 29, 1920.

Past and family history contain nothing of significance.

*Present Illness*—Five days before admission (September 8, 1920) he first noticed what he took to be a mosquito bite on his left cheek. This was on the day that he departed from Porto Rico for the States, whence he was bound to attend school. The next day his face started to swell and the swelling progressed rapidly during the five days that he was on the ship. He reported to the doctor on board, who made an incision through the pustule which had developed at the site of the original pimple. Later the doctor applied an ointment of some sort, but the oedema increased despite the treatment. When the ship arrived he was sent direct to Bellevue, diagnosed as erysipelas.

The boy had not been around horses, had not handled skins or hides, and does not shave. The family had just purchased a new hair brush used to dust the cushions in their car, and this is the only source of infection that he can suggest, unless he picked up the infection somewhere around the dock the day he sailed.

*Physical Examination*—Negative except for local condition.

*Local Condition*—On the left cheek, just below and behind the eye, there is an ulcerated area about 1 inch in diameter, surrounded by a ring of fussed vesicles. This whole side of the face is extremely oedematous, the oedema tightly closing the left eye and extending upward on to the side of the forehead and downward on to the neck. The oedema has forced its way across the bridge of the nose and has the right eye almost closed. The lymph nodes at the angle of the jaw are very large, but not at all painful or tender. There is no pain or tenderness in the face or head. The patient seems sick, but is mentally alert and fairly comfortable, except that his eyes are practically shut.

Serious sickness, consisting of severe urticaria, headache and slight pain in few joints. Relieved to some extent by adrenalin and atropin in viii—1/150, codein ¼ and ½ grain doses used several times and magendie mv twice.

Occasional joint pain noted during first week after discharge. No symptoms since.

The temperature ranged from 104, gradually descending to normal, and the pulse rate from 130 to 80. The urine proved negative, and a differential blood examination was not made.

In this as in the other case, blood culture, smear and culture from the lesion were taken. Blood culture remained sterile, smear and culture from the lesion were positive for anthrax. Wound culture remained positive for three days. Serum was given every four hours day and night, 30 c c intravenously, and 10 c c locally. This was continued for three days and three nights, or until the wound culture was sterile.

Serum sickness started on the night of the eighth day, was worst on the ninth and tenth days, and practically gone on the eleventh. Patient up in chair on the eleventh day for a few hours, up all day on the twelfth. Discharged on the sixteenth day.

Patient returned every few days for dressing of the local sore with which he was discharged. The area involved finally soured out, leaving an ulcerated area about 2 cm in diameter.

My own case follows, for the treatment of which much appreciation is due Dr H Blauvelt Charles W, admitted to hospital July 15, 1920, seven days ill. Ship boy. South American.

On admittance ulcer on left cheek about half size of dime, a scab forming on its center, the whole surrounded by a hyperæmic zone, the tissue tense, angry red, its edges raised above the surface, while the supraclavicular glands were slightly enlarged. The Schick diphtheria reaction was negative.

Patient has never handled hides, furs, bristles, or in fact to his knowledge any other contributory factors. He noticed a pimple on his left cheek about one week ago, in the center of the cheek. It became red, and the tissue adjacent became also reddened and painful, particularly on pressure. The cheek and left eyelid became oedematous and hot. This condition extended down the left sternocleidomastoid muscle into the neck. No pain elsewhere, and no enlarged axillary or inguinal glands observed. The oedema of both eyelids became marked without any discharge of or between the lids.

The temperature from July 15th to August 2d varied from 101 to 97, the pulse from 105 to 60, both assuming the lower levels as convalescence progressed. The respiration ranged from 20 to 18.

The urine examination proved negative, specific gravity 1020, no albumen, sugar or casts, acid reaction.

One-eighth of a grain of morphine sulphate was given on admittance and constitutional treatment throughout the illness. The diet was at first a liquid one, gradually becoming cereal,

vegetable, and when convalescence began the regulation hospital diet was ordered.

On July 17th the blood examination showed white blood corpuscles of 12 000 and polynuclears 74 per cent and lymphocytes 26 per cent.

On the 18th the hemoglobin was 80 per cent white blood cells 16,200 the polynuclears 75 per cent the lymphocytes 19 per cent, and the large mononuclears 6 per cent.

On the 20th hemoglobin was 80 per cent, white blood cells 16,200 the polynuclears 78 per cent the lymphocytes 16 per cent, and the large mononuclears 6 per cent.

Ten cc anti-anthrax serum was injected in right thigh upon admission and 2 cc under edge of the oedematous crater. Later 10 cc injected around wound 20 cc in left thigh. On the 16th 10 cc injected in cheek 40 cc intravenously, and later 80 cc intravenously.

On the 18th 10 cc in cheek 40 cc intravenously.

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On the 20th 20 cc at same site.

Total injection 245 cc.

At no time was serum sickness experienced.

On the 17th the left eye became less oedematous and there was less marked oedema and induration around the wound seat. The sensorium slightly dulled during the acute onset began to clear.

On the 20th the crater shaped wound grew less in depth its floor assuming a dark reddish color a mucoid dirty red fluid exuded from its center.

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On the 29th the crater is gradually filling in, its sides approaching the level of the surrounding area. Slight induration around wound site. No mucoid discharge. Dry sterile gauze dressings were applied to the wound daily.

On August 2nd patient left the hospital with slightly depressed scar at site of lesion.

I am indebted to Dr Herman Gerber of the New York Board of Health Laboratory for the following pathological findings on July 15 1920.

Smears and cultures of the ulcer direct showed few Gram positive bacilli, streptococci only of wound surface contamination and a mixed staphylococci present.

The cultures from the wound by rubbing a sterile swab in the center of the lesion and streaking several agar plates, showed an anthrax light growth in twenty-four hours. These were later isolated and found to be typical anthrax in culture morphology and virulence.

Sterile swabs applied to the center of the lesion were emulsified in a small volume of sterile saline solution, and this solution was inoculated into white mice. The mice died within 48 hours. At autopsy the spleen was found to be much enlarged, smears taken from its heart's blood,

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### DISCUSSION

DR HERMAN GERBER. The fact that anthrax is unrecognized by many physicians makes it imperative that they be instructed in its diagnosis and treatment—for where such a condition is unknown to physicians, the public cannot be expected to understand it.

As has been pointed out it is absolutely essential in clinical cases of anthrax that laboratory tests be made to corroborate the diagnosis.

### ANTHRAX AND SHAVING BRUSHES

Anthrax spores have been found to exist in virulent form outside of the animal body. Under suitable conditions these have been known to develop. The anthrax bacillus has been recovered from dust, infected horse hair, bristles, hides and even in hay.

The subject of anthrax infection through the means of bristles or shaving brushes is of special interest. Because of the continued occurrence of cases of anthrax through this cause, stringent methods have been adopted by the N. Y. City Board of Health to combat this disease by adequate methods of sterilization and disinfection of bristles and hair.

Systematic inspections are made of all establishments, dealers, handlers and manufacturers of hides, bristles, haircloth, etc. Samples of the different products in various stages of manufacture are collected and sent to the laboratory to ascertain the presence of anthrax spores. During the past year we examined over three hundred samples, of these I found 10 per cent positive, thus showing that the market is flooded with anthrax infected bristles and shaving brushes.

The samples of bristles and hair received were of foreign and domestic origin. They consisted of horse hair, goat's hair, badger and imitation badger hair and pig's bristles. The imported bristles usually arrived from China, Siberia, France and Japan.

Upon examination it was found that the most frequent source of anthrax infection caused by the use of shaving brushes came from bristles or brushes made of horse hair. These were of foreign and domestic origin.

The largest part of horse hair used for shaving brushes came from the Oriental source, China and Siberia furnishing the greater portion. This



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The largest part of horse hair used for shaving brushes came from the Oriental source, China and Siberia furnishing the greater portion. This

imported hair is very dirty and likely to be anthrax infected

This hair is said to have been cleansed and disinfected but it bears no indication as to the manner and methods of treatment and it has been shown that the methods employed are inadequate to sterilize the hair. Horse hair put up by domestic dealers comes mainly from Chicago. It is not submitted to any process which makes it safe from anthrax.

Of two hundred shaving brushes secured in the open market fifty were found to be anthrax infected. These could not be traced to any manufacturer as they bore no marks of identification to indicate their origin.

The following procedures are carried out in examination of specimens at the Research Laboratory, N. Y. City Health Department.

#### EMULSION

About 40 or 50 bristles are cut up with sterile instruments into a sterile mortar. In shaving brushes the bristles near the cemented end are used mostly. A small volume of sterile saline is added and the bristles are thoroughly ground up and macerated until a fairly dense emulsion is made. This suspension is then centrifugalized and the sediment which contains the washed off spores is used for mice inoculations and plate cultures.

The emulsion is then divided into two parts, one part being heated in a water bath to 75° C. for fifteen minutes to destroy vegetative forms, the other part remains unheated.

#### PLATES

Poured agar plate cultures are made of both parts using six dilutions of each—Incubated for 24 hours at 37° C.

#### INOCULATIONS

The emulsions are then inoculated into white mice, using about 0.5 to 1 c. c. subcutaneously. These mice are observed for five days and if they survive, and the plate cultures show no growth the specimens are reported negative for anthrax.

#### AUTOPSY

All mice that die are autopsied immediately, smears and cultures are made from the heart's blood, spleen and liver. These are stained by Gram's stain, Hiss capsule stain and the McFadyen methylene blue stain. The smears from mice that died of anthrax show large gram positive bacilli in pairs and short chains and in the majority of cases encapsulated.

Besides the high pathogenicity, the presence of an oedema together with an enlarged spleen, the invasion of tissue, demonstrated in smears and sections are found in mice that die of anthrax.

#### CULTURES

The anthrax colonies are very hard to differentiate at times, because of the numerous an-

thrax-like colonies that appear in many cultures.

In 18-hour old plate cultures the anthrax colony begins as a small grayish point which spreads gradually until it shows an irregular contour with projections of filaments. The deep colonies usually show irregular threads, and have a fuzzy appearance, and in coming to the surface the filaments show the stringy medusa head appearance. The projections appear very early and gradually lose their characteristic appearance.

After pure cultures are isolated from plates showing anthrax growth, transplants are made into veal broth media. In this medium the anthrax bacilli show a stringy growth which quickly settles to the bottom of the tube leaving the medium clear and transparent. A hanging drop is then made from this broth culture and the growth tested for motility. Anthrax bacilli are non-motile.

#### VIRULENCE TEST

If the organism is typical and non-motile then 0.2 cc of the broth culture is inoculated into a third mouse and thus tested for virulence. If the culture is typical anthrax the mouse dies within 18-24 hours. The organism being recovered from the heart's blood and spleen. A sample is finally reported positive when it shows all of the above findings including the virulence test.

#### PREVENTIVE MEASURES

The eradication of anthrax involves difficulties practically insurmountable. Our endeavors must be directed to its limitation and control. The means to be employed are education, supervision and regulation.

In order to reduce the number of clinical cases of anthrax, the cause being traced to the handling of hides, skin, hair, wool, etc., it is essential that complete disinfection be carried out, before the products are transported through the states. Strict regulations governing the methods of adequate sterilization of such products must be thoroughly enforced.

To prevent infection from shaving brushes of uncertain origin, the Federal authorities advise that such brushes be soaked in 10 per cent solution of formalin (40 per cent formaldehyde) at a temperature of 110° F. for four hours. Agitate the brush during this time so that all bristles come in contact with the formalin.

DR. WILLIAM JACOBSON, New York City. I am optimistic of the control of anthrax. During the past three and one-half years, while investigating anthrax for the New York City Department of Health, I have personally seen fifty cases, thirty-four of these cases have been described and analyzed by me in the Monthly Bulletin of the Department, Vol. X, No. 11. Among these cases, five have been children, the form of these cases in children has not been more severe than in adults, all of these children

have recovered. One patient, while suffering from anthrax, gave birth to a baby boy and the latter, though exposed, did not contract anthrax.

In tracing the source of infection of all these cases, in only two have the causes not been discovered. One boy contracted anthrax in school. He had been instructed in the art of brush making. I traced the supply of horse hair, which was found contaminated with anthrax, to a dealer who furnished similar hair to ten other public schools. This hair was promptly quarantined and sterilized, thus averting the further spread of anthrax among school children.

Recent improvements in the methods of sterilization of hides and hair and wool have been found practicable.

Co-operation of the Health Department with importers, manufacturers and dealers and with handlers of hides and hair have produced good results.

It remains for the practitioner, when he meets a case, not to delay the diagnosis, and promptly to treat the patient by anti-anthrax serum.

## ENDOSCOPIC EXCISION OF A TRACHEAL WEB\*†

By CHARLES J. IMPERATORI, M.D.  
NEW YORK CITY

IN presenting this patient before the Section for its consideration, the idea mainly in view has been to arouse a discussion as to whether or not this special method of treatment should have been pursued in preference to some other. In the writer's experience, this type of case has been infrequent.

D. E. aged 35 years, family history negative and past history excepting as noted below is of no concern to us. She was assaulted on July 26, 1912, having her throat slashed with a razor. The trachea in the neighborhood of the second ring was cut. The patient was brought to Bellevue Hospital in an unconscious condition and had considerable subcutaneous emphysema of the face and chest. While having the wound sutured she regained consciousness. No tracheotomy tube being inserted the wound being sutured in its entirety. She remained in Bellevue Hospital for two weeks, the wound healed by primary intention. This case having occurred before the Oto-Laryngological service was established no endoscopic examination was made. However she has had dyspnoea ever since and which has gradually increased with marked paroxysms of what she characterizes as smothering attacks. She was treated by a private physician but unfortunately was given heroin in increasing doses, until now she has become a drug addict.

She was readmitted to Bellevue Hospital on March 11th as a prisoner and referred to the Oto-Laryngological service for examination and treatment because of the attacks of dyspnoea.

Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 5, 1921.

\*This case was seen on the service of Dr. C. G. Coakley at Bellevue Hospital.

Endoscopic examination on April 23rd showed the following:

One and one quarter inches below the glottis there is a diaphragm or web of cicatricial tissue extending across the trachea from before backward. In the center of it there is a lumen somewhat elliptical in shape anteroposteriorly that admits a 16 French trachea dilator. This web was removed with the patient in the suspension laryngoscope. The attachment of the web to the trachea was severed by using a Lynch knife and mosquito clamp. The little tabs that were left were removed by using a biting forceps through a 9 mm. tracheoscope which in turn, was passed with the patient still in the suspension laryngoscope.

At completion of the operation a 26 French trachea dilator was very easily passed down the trachea and she has been dilated twice since then, using a 28 French.

### REASONS FOR PRESENTING THIS CASE

First, the importance of ascertaining the cause of dyspnoea in any case of previous injury or disease of the trachea. If this had been done, this patient would not have become a drug addict with all the attending sequelae.

Secondly, method of excision, rather than doing a laryngostomy.

Thirdly, continued dilatation through laryngoscope with laryngeal dilator.

## Deaths

BATTLE THOMAS JOSEPH New York City Bellevue Medical College 1897 Member State Society Died September 28, 1921.

BLANKEMEYER HENRY J. JR. Gabriels Jefferson Medical College 1903 Member State Society National Tuberculosis Association Resident Physician Sanatorium at Gabriels Died October 22, 1921.

HAYDEN JAMES RAYMOND New York City College of Physicians and Surgeons of New York 1884, Fellow American Medical Association, American College of Surgeons Member State Society, American Urologic Society, Academy of Medicine G. U. Surgeon Bellevue Hospital Consultant G. U. Surgeon St. Joseph's Hospital Yonkers Died October 10, 1921.

MASON ROBERT Rochester, McGill 1896 Member State Society Died September 12, 1921.

MOONEY EDWARD L. Syracuse, University of Michigan 1886, Fellow American Medical Association Member State Society New York Academy of Medicine Syracuse Academy of Medicine Physician Good Shepherd Hospital Died October 1, 1921.

MURRAY DWIGHT H. Syracuse Syracuse Medical College, 1884 Speaker House of Delegates of the American Medical Association Vice Speaker House of Delegates of the Medical Society of the State of New York, Fellow American College of Surgeons New York Academy of Medicine Member Syracuse Academy of Medicine American Proctological Society Proctologist Good Shepherd Hospital and Free Dispensary, Consulting Proctologist Memorial Hospital Died October 21, 1921.

PERRY SARAH H. Rochester, University of Buffalo 1882 Fellow American Medical Association Member State Society Died September 9, 1921.

SAYRE ELIAS BROOKS Canandaigua Licensed Ontario County Society 1877, Member State Society Died October 13, 1921.

## New York State Journal of Medicine.

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street, New York, N Y

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## DWIGHT HENDERSON MURRAY, M D

WE were shocked on learning of the sudden death of Dr Dwight H Murray on Friday, October 21st. He was in his sixtieth year. Dr Murray will be mourned by his many friends, and regretfully missed at the meetings of the medical societies and other organizations in which he took an active part. Dr Murray was born in Altmar, Oswego County, New York, in 1861, and graduated from the Syracuse College of Medicine in 1884. He attended clinics in Berlin and Vienna, but Syracuse was chosen for his medical career.

At the time of his death he was professor of clinical proctology in the Syracuse University College of Medicine, proctologist at the Syracuse Memorial Hospital for Women and Children, and at the Hospital of Good Shepherd.

He was a member of the Board of Managers of the Onondaga Sanatorium, and on the staff of the Syracuse Free Dispensary. He was a former president of the American Proctological Society, and also of the Medical Society of the County of Onondaga, a member of the New York Academy of Medicine and the Syracuse Academy of Medicine. Dr Murray was a conscientious worker for the best interests of the Medical Society of the State of New York, which he represented in the House of Delegates of the American Medical Association consecutively for the past ten years. He prepared the plan for the establishment of the speakership of the House of Delegates of the American Medical Association, and later for the House of Delegates of the Medical Society of the State of New York.

At the time of his death he was speaker of the former and vice-speaker of the latter.

He was active in the formation of the Section on Gastro-enterology and Proctology of the A M A, and was its first chairman.

In the field of research medicine Dr Murray has to his credit the discovery of a micro-organism which is an important factor in the etiology of pruritus ani which he named streptococcus fecalis. The following is quoted from a standard work on this subject: "Murray had cultures made in 98 cases of pruritus ani and found streptococcus fecalis present externally on the skin in 85 cases. A blood test in each of the 85 cases further showed that the patients resistance to streptococci was low, while it remained high for other micro-organisms. All these cases were treated with autogenous vaccines, with the result that itching ceased and streptococci were not found in smear and swab, after a period varying from the first to the eighth injection."

There are members of our State Society who are thankful for Dr Murray's discovery, which contributed to their personal comfort.

In civic life he was active in the affairs that were progressive and made for good living in the city of his home.

Through his efforts the Physicians' Building was made possible for the use of medical practitioners. He was treasurer of the corporation, he was treasurer of the Dwight Realty Company and of the New York and Yonkers Railway Company.

Surviving are his widow, one son, and a married daughter.

Dr. Murray will be remembered for his genial personality and eminent worth.

'Leaves have their time to fall  
And flowers to wither at the north wind's breath  
And stars to set—but all  
Thou hast all seasons for thine own oh Death!

E. ELIOT HARRIS

### A CENTENNIAL CELEBRATION

FOR a society to reach a centenary is more rare than for an individual to do so. Even many governments do not live a hundred years. The Medical Society of the County of Erie very properly decided to celebrate the hundredth anniversary of its founding by the Legislature of the State of New York in so unusual a way as indelibly to mark the occurrence. It set aside an afternoon and evening for the exercises. By an intensive campaign it added quite 100 names to its membership, thus enrolling 800 of the 900 licensed physicians in Erie County.

The setting for so significant a celebration was made possible through the courtesy of the Board of Commissioners of the Department of Hospitals and Dispensaries of the City of Buffalo who gave the use of the just completed magnificent additions to the Buffalo City Hospital—quite a new departure for hospital managers. The society made the dedicatory exercises of the new diagnostic and treatment clinic of the hospital a part of the day's exercises. Continuous and parallel clinics attended by over five hundred members were given during the afternoon—in surgery by John B. Deaver, M.D., Professor of Surgery, University of Pennsylvania; in medicine by Charles S. Hoover, M.D., Professor in Medicine, Western Reserve University; and in podiatric version by Irving W. Potter, M.D., Associate Professor of Obstetrics, Medical Department, University of Buffalo.

Four hundred members and guests sat down to a banquet served in the hospital corridors followed by addresses from eminent representatives of national and state organizations.

The Erie County physicians are always to the fore in starting innovations—movements that exert permanent widespread influence on the practice of medicine. It was the initiative and eight years of struggle on the part of the Medical Society of the County of Erie that inaugurated State Medical licensure in New York from whence it has spread to all the United States and been the means of putting out of existence medical

diploma mills. To Erie County activity is to be credited the inauguration of state and county care and treatment of the tuberculous in government sanatoria. It was in Erie County that municipal health departments first were established on a plane of activity that has so greatly benefited the health of the cities and towns of our country.

The people so constantly are being importuned in flagrant newspaper advertising of quackish propaganda that convey not only half truths but even false statements in regard to simple hygienic and sanitary conditions that the time is ripe for the medical profession in properly dignified and ethical ways to enlighten the public about health, hygiene and sanitation. The people have ever thirsted for the truth about their bodies and the very men who know have denied them the light—not because they ought not to know but because it was claimed to be not only unethical for the physician to lecture on professional topics but also because it was feared that it might lower the standards of the profession.

In the celebration of its centenary the Medical Society of the County of Erie has made an effort to enlighten the people in preventive medicine, hygiene and sanitation by establishing for the first time, in medical history, a Health Week Campaign in a medical institution under the auspices of a strictly medical organization and solely conducted by physicians. This centennial celebration has added to the usual commemorative character a constructive one that should so stir public opinion as to put medicine on the pedestal it justly should occupy.

Unlike those conducted by welfare organizations in an effort to demonstrate to the public the value of the work of the particular organization conducting it, the aim of this week conducted by the profession, has been to tell the public what to avoid to escape ill health and how to live to maintain good health—a real example of that altruism of medical practice about which the doctor is so sensitive.

Erie County Health Week Campaign for the general public, included a large series of exhibits covering many phases of public health, hygiene and sanitation, of industrial medicine, of Safety First, of the municipal departments of Health, Education, Police, Fire, Welfare and Water, of foods, especially of milk, of Child Welfare work, of the Red Cross and other forms of nursing and relief, of tuberculosis, of venereal diseases, of a series of moving pictures and stereopticon views covering many of the topics shown in the exhibits and presented in the lectures and finally of 30 minute popular talks during five afternoons and evenings on various public health hygiene and sanitary topics by a corps of fifty different members of the society.

Although the hospital which housed the ex-

hibits, movies and lectures is on the outskirts of the city, difficult of access, yet some 4,000 people availed themselves of this opportunity to secure the truth about their bodies from the men whom they knew could tell them rightly

The society in its efforts to establish closer contact with the people deserves and undoubtedly will have the co-operation of the public. Erie County should be proud of the public-spirited men and women who selected a Health Week as the best possible manner of celebrating the centenary of an organization that has achieved so much for the welfare of the people of the county.

ALBERT T. LYTLE

### GROUP MEDICINE

**D**URING very recent years there has been a rapid development of group medicine throughout the United States, applying the principle of organization to medical practice similar to that so successful in industry, by the co-ordination of expert judgment and broader facilities. This widespread development in medicine now frequently leads to the question of its advantages broadly speaking and of the influence its still greater development will exert on the physician of today and on medicine as a vocation.

The determination of the facts leading to the diagnosis and indicated treatment by a council of two or more men with special training in the different branches of medicine and enjoying the facilities of the laboratory aids of all allied sciences, all under one roof, constitute group practice of today. Experience in efficiency conducted hospitals demonstrates that it is not a new thought, but rather the constant application of the established custom of consultation and essential laboratory aids applied to private practice, simplified by routine procedure, and resulting in more accurate diagnosis with economy in time and expense to the patient. As Lewellys F. Barker puts it, an efficient group, considered as a whole, becomes a kind of glorified general practitioner. The group acts as a unit, doing what a single practitioner could do if he possessed all the knowledge and all the skill of each of the group and could multiply his time and energy to apply them.

The unusual success of the Mayo Clinic, which has been an exponent of the group practice for years, probably originated and certainly stimulated the idea all over the country, and the experience of the large number of our physicians in the late war with the advantages of co-ordination and co-operation of hospital groups has probably been the cause of the extensive movement in favor of group practice.

The different types of group clinics are well described by V. N. Leonard of Duluth in his

recent article on the subject, and with slight modifications they are as follows:

#### "ONE MAN GROUP"

An organization gradually developed by a successful physician or surgeon around himself and his large practice as a nucleus. These groups are at present more numerous than any others, and as a rule offer a very high quality of medical service. These groups may be subdivided as follows:

*Primitive Type*—The busy practitioner who engages one or more assistants. These groups rarely survive the dominating head, and do not as a rule attain more than moderate dimensions.

*Surgical Type*—A successful surgeon surrounds himself with a diagnostic group of specialists to do all but the actual operative work. While it may become a well balanced departmental organization, its essentially surgical character is never lost. This group contains the most successful present day examples of group medicine.

*Specialty Type*—Developed in the same way as the surgical type, its work is largely or entirely confined to the specialty with which its dominating head has become identified.

*Medical Type*—Also developed in the same way as the surgical type by a successful internist, and if comprehensive in scope usually offers a high quality of diagnostic and medical work. The financial possibilities of this type are, however, not as great and may even limit a full development of laboratory aids in the hands of experts on account of the high cost of this work.

#### "CO-OPERATIVE GROUP"

These groups exhibit characteristics which differentiate them from "One Man Groups" in that they represent an organization of physicians co-operating for the purpose of private medical practice with the object of giving more comprehensive and efficient medical and special service. There is, at least professionally, no dominating head, and each member retains his identity and has a voice in the conduct of its affairs. Each member, if not already a mature specialist, is given the opportunity to develop himself, the ultimate object being a well balanced organization of trained individuals, each responsible for that type of work for which he is best fitted.

*Primitive Type*—A co-operative organization of general practitioners from the same community, each one of whom has perhaps been attempting to cover the entire fields of medicine and surgery. Such a group by the maintenance of laboratories, more careful records and interchange of opinions immediately improve the efficiency of their service. By gradual special

training of the members of the group, an efficient, balanced organization may result

**Departmental Type**—Consists of a co-operative organization of specialists most of whom have been in practice in their specialty in the city where the group is formed. The recognized inability to do full justice to their obscure cases and the present trend toward group practice has resulted in a large number of these clinics. Observation would indicate the probable advantages of this type both to patients and to the members of the group. A comprehensive group of this kind can exercise all the desirable functions of other types.

#### DIAGNOSTIC GROUP

These are characterized by the limitation of function to diagnostic work and depend entirely on work referred by medical men not members of a group.

**One Man Type**—Represented by an internist who confines his work to diagnosis with a more or less complete diagnostic organization developed around him. Instances of this kind are rare and the possibilities for development appear limited.

**Departmental Type** This consists of a group of specialists who function for diagnostic purposes only and aim to offer the medical profession a diagnostic service of higher type based on a collaborative study by experts. In theory it is an excellent idea both from the patients' and the physicians' viewpoint, but in practice it thus falls far short of the mark, as the rather unremunerative results of purely diagnostic work when extended to include those able to pay only very moderate fees will not secure the services of men necessary to make it an efficient organization in which the medical profession will place absolute confidence.

The success of any group and this includes the departmental co-operative group as well, seems to depend to a very great extent if not invariably, on the personality of usually one man even though he is simply a working member of the group, and the loss of this influence may easily lead to deterioration with loss to the members of the group and discredit to group practice.

Incorporated bodies are not legally permitted to practice medicine and for many reasons it is not desirable to change this law. The working arrangement of the group must be such that in all instances every individual is legally responsible for his acts.

This new form of medical practice seems to call for revision in the ethical conception of publicity or demand a more liberal interpretation of what is considered strictly ethical procedure. It would seem that the principle of advertising is as objectionable for the group as for the in-

dividual and that the supposed ignorance of the public concerning group practice scarcely justifies altering the established rule. The group is in most instances having difficulty in overcoming the antagonism of the profession as it is, and any assumed liberty in requiriting the public with the advantages of group practice in circulars or the public press will certainly increase this opposition.

There is no doubt that group practice offers advantages to both patient and physician and in theory, at least, solves many of the problems not only in preventive medicine but also in the efficient care of the sick. The patient must benefit by earlier and more accurate diagnosis and the better rounded out observation and treatment, as well as by the economy in time and expense due to the concentration of the group, routine procedure and absence of duplication of effort. No matter how efficient the physician, he may become more so by the self education of constant association with the other members of the group, and the level of the less efficient is also raised by this contact. The more extensive, or rather the more complete the group, the more educational it is to its members, in fact its value in this respect is proportionate to its size. While a group of experts constitute the ideal group, a group of average men may make a good working group whose diagnostic and curative work will be better than that of any individual member. It is also true that group association will lessen the individual struggle because the organization by its established reputation for service and efficiency holds the patient and lessens the ever present sense of personal responsibility. The established "good will" may become an asset not only in stabilizing income in absence or illness, but even as a legacy by the sole so to speak to the successor in the group position vacated by incapacity or death.

It cannot be denied that undoubted dangers and disadvantages exist in group practice and that there will be good groups and poor groups as there are good physicians and poor physicians. Theoretically many things are most desirable, but the practical realization may be so far below the anticipation as to make the result actually undesirable.

The absence of the concrete individuality of the physician in every phase of the patients' care and the lessened strength of his personal responsibility, are disadvantages. The loss of the traditional personal confidential relationship between physician and patient will probably abrogate many of the special privileges now enjoyed by the medical profession. Although the group may contain experts in every specialty, experience teaches that the selection of a consultant is ordinarily always influenced by numerous factors,



a privilege practically denied the group member, to the distinct disadvantage of the patient. It takes but a moment's reflection on the significance of this disadvantage of group practice to realize how great it may be.

The extensive development of the group medicine system of practice would doubtless have an effect on the status of the physician of today, but the evolution would probably be slow enough to allow him to find his place in a group or in a proper independent position. It is this possibility of uncertainty which forms the basis for the widespread antagonism of the profession to the group system and deters many prominent members of the profession with extensive consulting or referred practice from forming or entering groups. The formation of a group in a small community might stimulate the independent doctor to do better work but, even so, the group may offer greater attraction and his position may become a difficult one. This group might also make it practically impossible for a beginner to establish himself. The effect of the extensive development of group practice on the desirability of medicine as a vocation and on individual initiative in the science and art of medicine are questions impossible to answer at present but it is difficult to see how group practice will attract a better class of students to medicine, or how it will encourage initiative as there must be certain commercial elements in the undertaking.

### SCIENTIFIC RESEARCH

THE March, 1921, edition of the Bulletin of the National Research Council presents in detail data concerning funds available in the United States for the support or encouragement of scientific research. An up-to-date file on the subject is maintained in the office of the Research Council for correspondents. The funds listed consist of medals, prizes, grants, institutional funds, fellowships and scholarships. Section II presents data concerning medals and prizes available for the encouragement of research. Section III contains information concerning grants which are made, upon application, to individuals or institutions who desire to conduct a scientific investigation. Section IV presents information concerning funds which are available for the support of research only within the institution by which they are administered. Section V is devoted to those fellowships and scholarships in connection with which research is specifically mentioned. In Section VI are listed all of the funds which are known to be available for the support or encouragement of research in the biological and other sciences. Section VII indexes all institutions mentioned in the Bulletin and those funds which have distinctive titles.

### HEALTH INSURANCE IN ENGLAND

AS a matter of interest the following article is reprinted from a recent issue of the *London Times*. It seems unfortunate that conditions should demand the discussion detailed in the public press, and presents an additional argument against the support of laws of a similar nature which may be proposed to our legislatures.

#### PANEL FEES

#### DOCTORS TO RESIST REDUCTION

The threatened reduction of the capitation fee for medical services under the National Health Insurance Act was discussed at a meeting of general practitioners at the Connaught Rooms yesterday, called by the Medical Practitioners' Union. The following resolution was adopted—

That this meeting of panel practitioners affirms that the 11s capitation fee (recently fixed by arbitration) is inadequate to cover the services rendered, and will resist any reduction whatsoever.

DR E H STANCOMB, president of the union, said that they were face to face with a condition where wages and salaries up and down the country were being reduced, and trade unions in all directions had failed to maintain the *status quo* owing to the present economic conditions. They would have to be prepared to face squarely the question—Were they as a body of medical men, whose primary duty was to serve the community, justified in putting up a claim to be exempted from a reduction? They would have to counter a certain amount of unpopularity from persons who did not understand the conditions under which they worked.

At the moment it was impossible for him to say when the threatened reduction might be formulated, or to what extent it might be proposed, but it would appear that an irreducible minimum of 13s 6d, as decided by the whole of the profession, had become a reducible maximum. A real rigid inquiry into the work accomplished by practitioners who were not highly paid, not well equipped, and who had little assistance, would reveal the fact that they had done remarkably well, and had enabled those who investigated the statistics of the country to say that its health had improved under the ægis of the panel doctor. If some did not carry out the work as they should do, he would warn the Government that if they wished to remove from the profession the slightest slur of any dereliction of duty, and to get the maximum of benefits, the way was not to handicap the main body of practitioners.

DR H J CARDALE, chairman of the London Panel Committee, in proposing the resolution, said that they thought they were justified in not waiting until an official announcement was made before they expressed their opposition to a reduction. They had gone to arbitration on a matter which should not have been arbitrated.

upon at all. If panel doctors were going to be badly paid, it must be of the nature of things that the service they gave would not be so good as if they were reasonably paid and contented.

DR E. A. GREGG said that if the State found it could not pay allowances, and the only alternative was to abolish the act, practitioners would have to hold together and say, 'Let us abolish it.'

### HUMAN BOTULISM

SOME suggestions by K. F. Meyer, of the University of California, and J. C. Geiger, of the U. S. Public Health Service, on the bacteriological diagnosis of human botulism have just been published in the weekly health reports of the U. S. Public Health Service.

For various reasons most diagnosis of botulism has been based chiefly on clinical symptoms and few bacteriological studies of the tissues have been reported. Microscopic studies of the tissues give insufficient evidence.

Stool examinations appear to be valuable as the organism has frequently been found in the excreta of infected animals and as studies by the authors of four human cases have shown that it may remain in the intestinal canal and be voided in the stools. Probably the spores can be found only in the fecal remnants of the causative meal but as constipation is an almost constant manifestation of botulism and in some cases has prevented all movements of the bowels for ten and even sixteen days positive findings are possible for two and even for three weeks. However, the diagnostic value of stools cannot be accepted until repeated tests on normal stools have demonstrated the absence of the bacillus.

Observations on infected animals indicate that the spores can germinate in the pericolic intestinal tube and from toxin. In one of the human cases studied the spores were found in the jejunal wall but not in the chyme of this particular loop. This may, however, have been accidental.

Further studies should be directed to the determination of the period of continuance of the bacillus in fecal discharges, the quantitative estimation of the eliminated spores, the quantitative comparison of the spores in the causative food and in the stools, the testing of filtered stool suspensions in guinea pigs for toxin, and the testing for spores of the stools of normal persons who eat raw fruit or vegetables and live in places where the organism is quite common in the soil. Methods of tissue and stool culture are described in the report.

### BOTULISM AND SLEEPING SICKNESS

RECENT reports in the public press and in medical literature suggesting that many if not all the cases of sleeping sickness recently recognized in the United States were really due to botulism must be considered incorrect, according to a paper recently published in the Public Health Reports, by J. C. Geiger,

epidemiologist, of the U. S. Public Health Service. Botulism and sleeping sickness (encephalitis lethargica) are different diseases, nevertheless, adds Mr. Geiger, because of the resemblance in certain symptoms care must be taken to eliminate botulism in the differential diagnosis.

In a case in San Francisco in April last botulism was not suspected until after the patient was dead, and was not proved until after an autopsy had been made. Cultures were made from the medulla and, after incubation, were tested against antitoxins of the A and B types of *Botulinus*. The B antitoxin protected the pig, but the control pig and the one inoculated with A antitoxin died within twenty-four hours. This is the first recorded instance of the isolation of *Botulinus* from the brain of a human patient.

Pursuing the same line, I. A. Bengtson, bacteriologist of the Hygienic Laboratory, describes recent experiments by which the presence of *Botulinus* in canned foods may be simply and expeditiously determined by the direct toxin intraperitoneal inoculation of white mice or guinea pigs with the food substance (if available) and may thus aid in early diagnosis. Direct inoculation does away with the delay occasioned by filtration and isolation.

By the intraperitoneal inoculation with the food culture of three mice one of them previously inoculated with type A antitoxin, one with the B type antitoxin and one uninoculated, it may be possible in a short time to determine whether the A or B type is the causative agent and therefore which type of antitoxin should be used for treatment. It is best to treat three such series of three mice with doses of 1 cc, 0.5 cc, and 0.1 cc respectively.

The time required for symptoms to develop depends on the amount of toxin in the culture. Laboratory tests with dosed foods showed very swift results (minimum time with mice, 1 hour 10 minutes), but foods containing such large amounts of toxin would probably never be used for human consumption. Nevertheless, it seems probable that the symptoms and deaths of mice inoculated with foods that caused recent outbreaks would appear in time to be of material assistance in diagnosis.

### PUBLIC HEALTH LECTURES

The Public Health Education Committee of the Medical Society of the County of New York, in co-operation with the New York Academy of Medicine, announce a series of public lectures on Health Education and Prevention of Disease. The following list of the titles is indicative of the scope of this work.

Essentials of Proper Supervision of Pregnancy

The Proper Care of the Expectant Mother  
The Necessity for Proper Care for the Mother after the Delivery of her Child

**Care of the Child of Pre-School Age**

The Need for More Care of the Pre-School Age Child

Practical Methods of Supervising the Health of the Pre-School Child

**Mental Hygiene in the Community**

Prevention of Mental Disorders

Individual Differences in Children

**What the Public Should Know about Cancer**

Delay in the Treatment of Cancer and its Effect on the Cure

The Importance of Early Diagnosis of Cancer

**Health of the School Child**

Evidences of Some of the Disabilities of Children Which Should be Known to Parents and Teachers

**How to Answer Children's Questions**

How Life Begins

**Modern Conceptions of Nutrition**

Some Nutritional Disorders in Children and their Prevention

Some Applications of Our Newer Knowledge of Nutrition

**Contribution of the Laboratory in Some Epidemic Diseases**

The Schick Test in Diphtheria

Sleeping Sickness

What the Laboratory Does in Treating Cases of Sleeping Sickness, Meningitis and Infantile Paralysis

**Tuberculosis**

Some Tuberculosis Problems of the Day

How We Fight Tuberculosis in New York City

**Industrial Diseases in Relation to Fatigue**

The Human Machine and the Factory

**LEGISLATIVE BUREAU**

The Committee on Legislation of the Medical Society of the State of New York has established the Legislative Bureau on October 15. The address of the Bureau is The Commons, Pine and Chapel Streets Albany, N. Y. to which office all inquiries and information concerning the Committee should be addressed.

**NATIONAL CANCER WEEK**

The American Society for the Control of Cancer is to be commended for the elaborate preparation and enthusiastic carrying out of nation-wide publicity in this undertaking of merit. Regular and special meetings of medical societies, public health educational lectures, special articles in the medical and lay press, all attest to the efficiency of management. The result of this campaign must impress the profession as well as the public with the seriousness of the situation and the remedies suggested by our most prominent medical men.

**AMERICAN PUBLIC HEALTH ASSOCIATION**

This association celebrates a semi-centennial and holds the Annual Meeting in New York City this month. A most attractive as well as instructive program has been arranged and a large and enthusiastic meeting is assured. These yearly gatherings of public health officials and others interested in preventive medicine are becoming more important as time goes on, and deserve every encouragement and support.

The order of events for the semi-centennial celebration will be as follows:

Monday and Tuesday, November 7-8—Registration for the Health Institute

Tuesday to Friday, November 8-11—Daily demonstrations of the Health Institute

Saturday, November 12 (morning)—Boat excursion around the island of Manhattan for visitors attending the Health Institute

Sunday, November 13—Health Sunday, with sermons and addresses on appropriate subjects in various churches and halls

Sunday afternoon and Monday, November 13-14—Registration for the Fiftieth Annual Meeting, Hotel Astor

Monday, November 14, to Saturday, November 19—Health Exposition, Grand Central Palace

Monday, November 14, 2 P. M.—Section meetings, Fiftieth Annual Meeting, Hotel Astor

Monday, November 14, 7:45 P. M.—Opening general session, reception, dancing (informal), Grand Ballroom, Hotel Astor

Tuesday, November 15, 10 A. M.—Section meetings

Tuesday, November 15, 2 P. M.—Section meetings

Tuesday, November 15 (evening)—Free

Wednesday, November 16, 10 A. M.—Second general session

Wednesday, November 16, 2 P. M.—Free, to allow visitors to attend Health Exposition

Wednesday, November 16, 7:30 P. M.—Jubilee Banquet in honor of Dr. Stephen Smith, Hotel Astor

Thursday, November 17, 10 A. M.—Section meetings

Thursday, November 17, 1 P. M.—Luncheon to members and guests at Metropolitan Life Insurance Co.

Thursday, November 17, 2:00 P. M.—Third general session

Thursday, November 17 (evening)—Free

Friday, November 18, 10 A. M.—Section meetings

Friday, November 18 (afternoon)—Boat excursion around the island of Manhattan for visitors attending Fiftieth Annual Meeting

## CORNELL UNIVERSITY PAY CLINIC

The following announcement of the establishment of a Pay Clinic by the Cornell University Medical College has been made:

The Council and Faculty of the Cornell University Medical College announce a reorganization of the Dispensary Clinic in the College building First Avenue and 27th Street New York City, by which from November 1, 1921 the Clinic will be conducted under a new plan designed to develop much greater efficiency in diagnosis and treatment in all of the chief branches of medicine and surgery. In order to meet the greatly increased expense of a well paid staff there will be an advance over the nominal fees heretofore charged.

It is the desire of the College to render a needed service to a major group in the community and to offer co-operation in diagnosis to the medical profession.

The public will benefit by obtaining at a fee within the reach of the wage earner the thorough medical service assured in a teaching institution supplemented by the efficient laboratory X-ray and therapeutic facilities of the College. The Clinics will be held each afternoon from 1:30 to 4:00 and Tuesday and Friday evenings from 5:00 to 7:30. Specialists in all departments of medicine and surgery will be present at these times for examination and treatment. An efficient administrative organization the limitation of the number of patients admitted and the utmost privacy and consideration will insure the patients unhurried and courteous service.

The medical profession is offered the co-operation of a group of specialists to which it may refer needy cases for general diagnosis or single examination. Cases so referred will be returned to the physician after careful study with a written report of findings and recommendation for treatment. No case referred to the Clinic will be given treatment except at the direct request of the referring physician. The desire to co-operate not to compete with the general practitioner is emphasized. The College looks to him in referring cases to protect both the medical profession and the Clinic against abuse as the service is designed only for those who cannot afford the usual office rates for the medical attention required, yet who can pay something and do not wish to go to the ordinary charity clinic.

Great care will be exercised in the admission of patients who come other than through reference to confine the work to those of this group.

The Diagnostic Clinic will be directed by the Department of Internal Medicine which will analyze the reports of the specialists in connection with the laboratory findings and after consultation determine upon the diagnosis and proper treatment.

The members of the College Faculty will exercise direct supervision and control over the work in the clinics and will take an active part in the diagnostic procedure. Members of the profession who wish to accompany their patients will be welcomed at the Clinic.

## District Branches

### FIRST DISTRICT BRANCH

ANNUAL MEETING SOUTH NYACK N. Y.  
OCTOBER 19 1921

The meeting was called to order in the Auditorium of the Nyack Country Club by the president Dr. George A. Lutter.

Hay Fever and Pollen Therapy by Ralph Orkley Clock M.D. of the Lederle Laboratories. Discussion by Drs. Love, Lansing, and Stanwix.

The Diagnosis of Early Syphilis by Ray H. Rubin M.D. of New York City. Discussion by Drs. Hulett and Barringer.

The Etiology and Laboratory Diagnosis of Typhoid Fever by Charles I. Krumwiede M.D. Bureau of Laboratories Department of Health New York City.

The Relationship of the Medical Profession to the General Public. James F. Rooney M.D. President of the Medical Society of the State of New York.

The Continued Use of Digitalin by Harold C. Pardee M.D. New York.

Painting Some Observations its Causes and its Treatment by John Wyckoff M.D. of New York City. Discussion by Dr. Pardee.

Demonstration of Nervous Cases. X-ray photographs by Orrin S. Wightman M.D. of New York. Malignancy of Colon With Consideration by John I. Erdmann M.D. of New York. Discussed by R. P. Sullivan M.D. of New York City.

Radium in Tumors of the Bladder by Benjamin S. Barringer M.D. of New York City.

Radium Treatment in Carcinoma of the Uterus by Harold C. Baily M.D. of New York City.

### THIRD DISTRICT BRANCH

ANNUAL MEETING LEE N. Y.  
OCTOBER 13 1921

During the morning clinics were held at the hospital and a demonstration of the very complete X-ray equipment including a novel Sweet's localizing unit at the Troy Hospital and the manner of using radium was shown at the Samaritan Hospital.

The Troy Committee Dr. C. J. Patterson chairman entertained the branch as guests at the Marshall Samaritan where a luncheon was served.

The meeting which was an unusually well attended one was called to order by the president Dr. Bedell.

Dr. Rooney president of the Medical Society State of New York addressed the meeting on the subject of Social Tendencies and the Medical Profession outlining the drift to some momentous sociological or altruistic change and cautioned the medical profession to not be overpersuaded or misled by the plausible arguments of hired propagandists who represent but limited interests.

Dr. Edward Livingston Hunt secretary of the Medical Society of the State of New York presented a very interesting and timely paper on the Mental Disturbance Resulting from the Over Use of Drugs. Discussed by Dr. C. J. Patterson.

Dr. Mary Gage Dry of Kingston N. Y. presented some interesting data on Studies of Blood Before and After Etherization in Man and Dog with particular reference to the fat content of the blood.

Dr. Clinton B. Hawn of Albany N. Y. introduced the campaign of dissemination of information about



# NEW YORK STATE JOURNAL of MEDICINE

PUBLISHED BY THE MEDICAL SOCIETY OF THE STATE OF NEW YORK

VOL 21, No 12

NEW YORK, N Y

DECEMBER, 1921

## HYDRONEPHROSIS AS A GYNECOLOGICAL PROBLEM WITH REMARKS REGARDING THE INFLUENCE OF NEPHRECTOMY UPON SUBSEQUENT PREGNANCY\*

By ARTHUR MORSE M.D.,

NEW HAVEN CONN

From the Department of Obstetrics and Gynecology Yale School of Medicine

ALTHOUGH the treatment of surgical diseases of the kidney belongs properly to the general surgeon or urologist, the gynecological surgeon occasionally and unexpectedly encounters a lesion of this organ. Generally, this experience happens when the patient presents an abdomen which is notably distended as the result of an intraperitoneal lesion. Frequently under such circumstances differential diagnosis is difficult, for a hydronephrosis of unusual size, a large ovarian cyst and tuberculous peritonitis associated with excessive ascites present three clinical pictures which are strikingly similar. A recent experience in the Woman's Clinic at Yale illustrated this statement. Under a provisional diagnosis of an ovarian cyst, or a tuberculous peritonitis we opened the abdomen only to be confronted by a hydronephrosis of unusual dimensions. The organ was removed by transperitoneal nephrectomy. The pathological and chemical study of the distended kidney and its secretion together with a consideration of the gynecological and obstetrical problems suggested by the case furnish the theme for the present paper.

The clinical and pathological notes upon this case follow.

M. C. Portuguese, 1 para 23 years of age admitted to the hospital complaining of abdominal distension and uterine hemorrhage. Previous history negative except that three days before admission she aborted spontaneously at the second month. At this time her attending physician found the abdomen notably distended. Upon admission to the hospital she was groaning constantly and turning from side to side. When restricted to the dorsal position she lay with the thighs flexed. The pulse was 130 the temperature 103.8° and the respirations 30. Blood examination: rbc 4030000, wbc 17600. Differential count polymorphonuclear cells 92% mononuclear cells 8%. Smear negative. A catheterized specimen of urine specific gravity 1008 contained a very slight trace of albumin and a large number of pus cells.

Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 4 1921

Below the right mandible were a few scars which followed the excision of glands. The right apex of the chest was somewhat shrunken and the resonance impaired. The breath sounds were slightly harsh, but upon coughing there were no rales. Posteriorly, the lungs were clear except for suppressed breathing at the right base. Except for a soft basic systolic murmur the heart was negative.

The abdomen was dome shaped. The distension was uniform and extended from the symphysis to the ensiform process. The costal grooves were obliterated. The umbilicus was bulging. There was tenderness on pressure but this was not excessive nor was it associated with much muscular resistance. The hepatic dullness was not increased nor could the edges of the liver be felt. The spleen was not palpable. Upon percussion the whole abdomen presented a flat note, and signs of fluctuation left no doubt that the distension was due to a collection of fluid.

There was a slight bloody discharge at the vaginal orifice. The cervix was softened but its canal was closed. The lateral and posterior fornices were free. The fundus of the uterus slightly larger than normal was anteverted. The adnexa could not be made out definitely. Rectal examination added no further information.

The differential diagnosis of a large abdominal tumor is frequently difficult. In corpulent women, for example, it sometimes requires great care to determine whether a tumor is present at all and many mistakes result from a misinterpretation of an abnormal quantity of fat deposited in the abdominal wall and omentum. In the case in question, it was clear that the abdominal distension depended upon a collection of fluid. The problem therefore consisted of deciding what organ was involved.

The type of abdominal distension suggested as the three most probable lesions a large ovarian cyst, a tuberculous peritonitis with excessive ascites or a hydronephrosis of unusual dimensions. The patient was seen in consultation by several members of the hospital staff and while there was a lack of unanimity of opinion we were strongly inclined to the diagnosis of a cystic growth of ovarian origin. A cystoscopic examination which might have established the exact source of the tumor was omitted since relief from the increased abdominal pressure was urgent. After the usual preparatory laparotomy was performed.

The peritoneal cavity was occupied by a cyst which extended from the superior strait of the pelvis upward beneath the costal margins. The ascending colon was displaced to the extreme left and its thickened lateral peritoneal fold

overlay the anterior wall of the cyst. The tumor arose from the right kidney. The left kidney and the pelvic organs were normal. The peritoneal cavity was packed off and the lateral peritoneal fold of the colon was divided. By blunt dissection the cyst was freed from the surrounding structures and gradually rolled outward over the right side of the abdomen. The ureter came off from the lower median border of the cyst and could be traced downward to its vesical end. Except for a distance of 2 cm below the utero-pelvic junction it was normal. The duct was divided between ligatures at a point 2.5 cm below the utero-pelvic junction and the lower portion dropped back into the wound. The renal vessels entered the cyst on the posterior surface of its upper pole, at some distance from the ureter. They were doubly ligated and divided. Bleeding points were secured and the incision in the peritoneal attachment of the colon was closed with a continuous suture of catgut. Two cigarette drains were introduced into the renal fossa through a lumbar incision, and the abdominal wound was closed in layers. Recovery was uneventful and the patient was discharged on the twenty-seventh day in good condition.

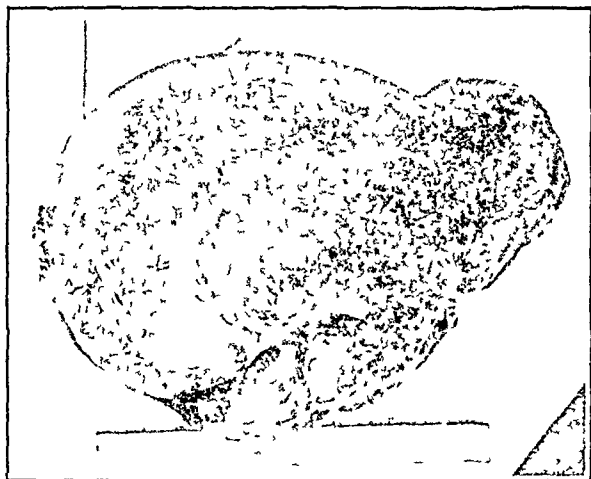


FIG 1—Hydronephrosis showing distended pelvis and calyces

**Pathological Report.** The unruptured hydronephrotic cyst weighed 9,300 grams and contained 8,550 ccs of fluid (Fig 1). It measured 29×30×13 cm, its greatest circumference was 100 cm. The largest part of the cyst was formed by the dilated pelvis, which measured 27×17×12 cm. Superimposed upon the pelvis was the dilated kidney which measured 25×9×10 cm. The surface of the latter presented several bosses 3-6 cm in diameter which corresponded to the situation of the distended calyces. The renal vessels entered the upper inner border of the cyst at some distance from the ureter, and divided into numerous branches which ran through the wall of the cyst. The vessels presented a normal appearance. The ureter sprang from the dilated pelvis at an acute angle, its upper end was lightly adherent to the cyst wall. Beginning just below the uretero-pelvic junction and extending downward there was a constriction 1.5 cm in length. Throughout

this portion of the duct the lumen was relatively narrowed.

The wall of the pelvis measured from 0.5 to 1 mm in width. The inner surface was glistening and smooth, except for several small plaques of salt deposit. At the ureteral orifice a valve-like formation was present. The distended calyces formed hemispherical cavities 3-6 cm in diameter. Separating these cavities were fibrous partitions, each enclosing a blood vessel. The wall of the distended kidney was unequal in width. In places it measured 0.5 cm, in others it was semi-transparent and reduced to 0.5 mm (Fig 2).

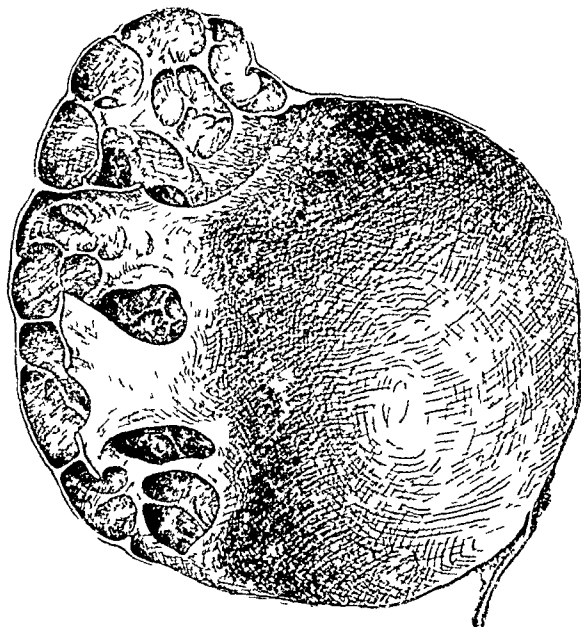


FIG 2—Hydronephrosis after bisection. Pseudo valve at ureteropelvic junction, dilatation of calyces, and thinning of renal cortex.

Sections for microscopic study were taken from several points in the wall of the pelvis and kidney. These showed a flattening of the epithelium lining the pelvis. The collecting tubules were compressed and the lining cells were flattened. There was an infiltration with mononuclear leucocytes and some increase of the connective tissue between the glomeruli and about the tubules. The vessels showed arteriosclerotic changes. The epithelium lining the convoluted tubules was flattened and many of the distended lumina contained red blood cells, in others a pink staining albuminoid material was present. Some of the glomeruli were converted into hyaline nodules, others had disappeared, leaving clear spherical cavities. The better preserved tufts were almost uniformly flattened, but others persisted as well rounded structures containing engorged capillaries.

In women hydronephrosis of moderate or medium grade depends frequently upon a compression of the ureter by an inflammatory exudate involving the parametrium or by growths of intrapelvic origin particularly those situated within the broad ligaments. Again the distension of the kidney is produced in rare instances through pressure upon its duct by an adherent ovary. Probably the most common cause of a bilateral lesion is carcinoma of the cervix. In the latter part of gestation a similar complication may arise for occasionally the expanding uterus, by compressing the ureter at the pelvic brim, interferes with the flow of

urine and so predisposes to the development of a pyelitis or less frequently leads to a distension of the kidney.

In other instances hydronephrosis is attributed to an unusual degree of renal mobility. The transformation of a normal into a cystic organ is said to occur by one of two mechanisms. Either the kidney descends and its lower pole swings inward toward the mid-line, or descent within the renal fascia occurs while the ureter retains its original position. In the first case, the uretero pelvic junction comes to occupy a relatively high position, while in either event a valve formation at the ureteral orifice is produced. On the other hand, the abnormal mobility of the kidney may be secondary to an increased weight of the organ due to retention and dilatation of the pelvis, so that in determining the true etiological factor underlying the condition errors may ensue.

In the case in question it appears that the constriction of the ureter was the primary factor concerned. Such a narrowing of the duct is capable of obstructing the downflow of urine and of interfering with a complete emptying of the renal pelvis. Thus a gradual accumulation of fluid takes place and as Geraghty has noted from the increase in weight the lower pole of the kidney sags and rotates inward toward the mid line. As a result of the descent of the organ the uretero pelvic junction is displaced and changes are produced at the ureteral orifice similar to those already described (Figs 3 and 4).

tory changes in the ureter which are secondary to foci of infection elsewhere in the body. Geraghty and Frantz hold a similar view and have reported eight cases of hydronephrosis in which a histological study of the utero-pelvic junction demonstrated that the obstruction depended upon chronic inflammatory changes in the ureteral wall.



FIG 5—Cross section through constriction of ureter. Note cellular infiltration of submucosa.

With the possibility that the constriction found in the case in question depended upon similar changes, sections for microscopic study were taken from various portions of the ureter. These included the lower portion of the duct which presented a normal appearance, the constricted portion and the uretero pelvic junction. The first of these sections showed a star-shaped lumen lined by normal epithelial cells which were several layers in thickness. The lumen of the constricted section of the duct was relatively narrowed. The lining cells here were poorly preserved and flattened. There was a notable infiltration of the submucosa with mononuclear leucocytes and plasma cells (Fig 5). In some places the infiltration was diffuse; in others the cells formed circumscribed accumulations lying just below the covering epithelium. Sections through the uretero pelvic junction showed a similar though less extensive infiltration. In this connection it is noteworthy that in patients who had suffered from cystitis, but died from other disease Sugimura found changes of an inflammatory type in the submucosa and muscularis of the upper ureter. Although it is possible in the case in question that the mononuclear exudation occurred subsequent to the formation of the stricture, I am inclined to accept the explanation offered by Hunner for the production of the lesion.

In spite of the notable atrophy of the kidney substance produced by the pressure of the ac-

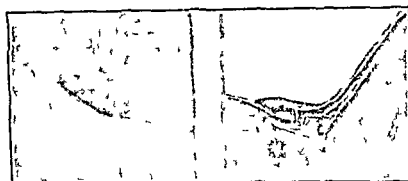


FIG 3—Ureteral orifice showing pseudovalve viewed from interior of hydronephrosis.

FIG 4—Horizontal section of upper portion of ureter and pseudo valve.

While it is obvious from the examination of the specimen that the hydronephrosis depended upon the constriction of the upper portion of the ureter the etiological factor responsible for the latter condition is at first glance not so clear. The congenital origin of these anomalies has been emphasized by some authorities and Bottomly and Eisendrath have recorded a series of cases in which the ureteral constriction was attributed to this cause. Recently, however, Hunner has attracted attention to the fact that an important part in the etiology of these lesions is played by intrinsic inflamma-



cumulated fluid, areas of cortex were found in which the glomerular tufts were remarkably well preserved (Fig 6). Similar observations in hydronephrotic sacs containing eight and thirty litres of fluid respectively are recorded by Young and Mosny, Javal and Dumont, while Ayer in over 400 cases of hydronephrosis found the kidney substance lacking in only eleven. In this connection, it is noteworthy that in white rats Hinman found remarkably well preserved glomeruli following experimental hydronephrosis lasting over a period of ninety days. The survival of the glomeruli in the specimen in question may be explained by the fact that portions of the hydronephrotic sac were better nourished than others, or, as Barney has shown experimentally, that a collateral circulation had become established through the vessels in the renal capsule.

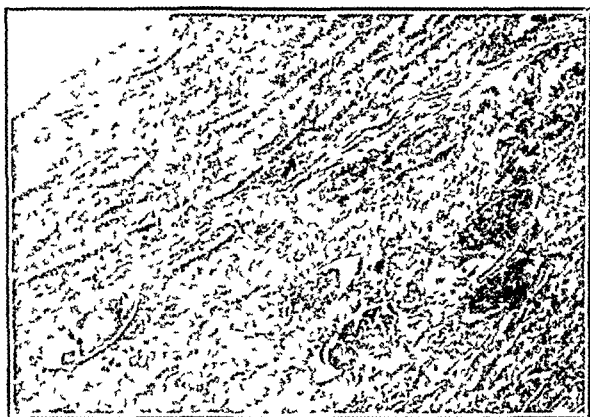


FIG 6—Histological detail of hydronephrosis. Note well-preserved glomeruli.

Although well preserved glomeruli are found ordinarily in some portions of large hydronephrotic sacs, the general atrophic changes interfere notably with the functional activity of the kidney. Occasionally, the fluid obtained is said to resemble normal urine, but often it is odorless, of a low specific gravity, and upon chemical examination affords no evidence of urea or uric acid. Several observers have recorded partial analyses of the secretion in these cases, but the same constituents are not found uniformly. Thus in the hydronephrosis of thirty litres studied by Mosny, Javal and Dumont, sodium chloride and the nitrogenous constituents, although present were relatively decreased in quantity. Ayer, on the other hand, records the presence of a small quantity of creatinin, but the absence of both urea and uric acid. Young likewise failed to demonstrate urea, while Bostrom estimated the sodium chloride content as approximately equal to that of normal urine.

In the case in question the hydronephrotic sac contained 8550 ccs of light yellow fluid

with a faintly urinous odor. The reaction was amphoteric, the specific gravity was 1005. A trace of albumin was present but no sugar was found. The sediment contained a few polymorphonuclear leucocytes and epithelial cells. The more important organic and inorganic constituents were estimated quantitatively by the chemical methods commonly employed in the analysis of urine. When compared with the physiological secretion of the kidney, as the following figures show, the fluid was relatively deficient in chlorides and in the nitrogenous compounds. However, it is clear that it was the product of the remaining secretory structures and was not a transudate from the vessels of the sac wall.

Grams per 1000 ccs of fluid	
Sodium chloride	30
Total nitrogen	39
Urea	231
Uric Acid	030
Creatinin	027
Ammonia	038

Turning now from questions of pathology and chemistry and viewing the case from the angle of practice, there arise immediately two questions of obstetrical interest. We should like to know, for example, whether any relation existed between the presence of the hydronephrosis and the early abortion, and again, in the event of subsequent pregnancy, what is the prognosis for women upon whom a nephrectomy has been performed?

I believe that we are safe in denying that in the case in question the premature ending of gestation depended upon metabolic changes associated with dysfunction of one kidney. Mechanically, however, there was doubtless a direct relation between the presence of the abdominal tumor and the six weeks abortion. The dilated kidney encroached upon the cavity of the true pelvis and probably the enlarging uterus becoming irritated by the pressure to which it was subjected began to contract and thus brought about the expulsion of its contents.

The prognosis in the event of conception following nephrectomy is, generally speaking, favorable. Bleyne regards the outcome in these cases with equanimity provided gestation proceeds normally, and in several instances Williams records an uneventful pregnancy and labor, following the removal of a kidney. We have had a similar experience with two patients upon whom a nephrectomy had been performed for renal tuberculosis.

On the other hand, when pregnancy subsequent to a nephrectomy is complicated by toxæmia the clinical picture is extremely serious. A thirty-four-year old primipara at term was referred to the Clinic with myocardial insuff-

iciency, orthopnea, and a blood pressure of 175. Four years previously a right nephrectomy had been done for tuberculosis. The present pregnancy had been uneventful up to the day of admission. Upon this date the patient suddenly developed symptoms of toxemia and her physician discovered a notable elevation of blood pressure and a large quantity of albumin in the urine. Examination in the clinic confirmed the degree of hypertension. The albumin measured 5 grams to the liter. Obviously, the woman's condition was grave, for pre-eclamptic toxemia always an uncertain and dangerous disease, becomes doubly so in the absence of one kidney. Since labor had not set in and as the immediate termination of pregnancy was indicated, we chose as the method of delivery Cesarean section under novocain anesthesia. This was accomplished successfully for mother and child. The degree of orthopnea diminished as soon as the uterus was emptied and the blood pressure fell rapidly to normal. On the fourth day post-partum the albumin disappeared from the urine. Two weeks after operation mother and child were discharged from the hospital. At the present time seven months after operation, the patient's general condition is excellent, the heart action regular, the systolic blood pressure normal and there is no evidence of renal insufficiency. It is clear therefore that while this patient's remaining kidney is unable to bear the increased strain associated with pregnancy, the organ is quite competent to eliminate the waste products of her own metabolism.

### Conclusions

To recapitulate

First—In women the differential diagnosis of large tumors is frequently difficult. A large ovarian cyst and a hydronephrosis of unusual dimensions present clinical pictures which are strikingly similar and the latter condition is occasionally mistaken for the former.

Second—The more common factors underlying the production of hydronephrosis are sometimes absent and the structural lesion depends upon a constriction of the upper ureter of inflammatory origin.

Third—Well preserved glomeruli are found at intervals in a kidney which is notably distended, although as shown by a chemical analysis of its secretion there is a notable disturbance of function.

Fourth—From the standpoint of prognosis in the event of a future conception nephrectomy in the child-bearing period is of peculiar significance. In general the outcome in a subsequent pregnancy is favorable provided gestation proceeds normally. However since the remaining kidney may be unable successfully to eliminate the waste products of both mother and fetus constant supervision throughout pregnancy is neces-

sary. If signs of toxemia appear such as albuminuria and decreased urinary output or hypertension, the pregnancy must be ended by the method appropriate to the individual case.

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### SOME CONSIDERATIONS CONCERNING ABDOMINAL PREGNANCY\*

By WILBUR WARD M.D.,  
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CASES of abdominal pregnancy met with after the period of viability has been reached, or approaching term, while not rare are relatively uncommon—and various writers in the last few years have made plays that each such case encountered should be reported in order that a more conclusive plan of procedure might be outlined as standard routine treatment. This is one of the reasons why I bring before you reports of two cases recently met with. The other reason the main reason, is in relation to the treatment of the placenta in these cases.

In this connection, a distinction has always been made between cases seen after the death of the fetus and those cases where the fetus is alive at time of operation. If the fetus has already died and no urgent symptoms on the part of the mother are present the accepted plan

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn May 5, 1921.

is to delay operation until thrombosis has been firmly established in the placental sinuses, a matter of ten days or two weeks. It is then usually feasible at operation to carefully detach the placenta and remove it without alarming hemorrhage, although there may be considerable risk in this procedure. In my first case some ten years ago this was the plan followed without untoward result, although the patient died some time later of acute intestinal obstruction due to adhesions.

With a living fetus the situation is somewhat different. The placenta instead of being attached as normally to contractile tissue, is implanted upon non-contractile tissues, and the slightest separation of the placenta from its non-contractile implantation is invariably followed by profuse alarming hemorrhage and the greatest care is necessary therefore in the handling of the abnormally situated placenta. In a few cases this attachment is found to be in the neighborhood of the broad ligament with a base more or less pedunculated. Here ligation of the ovarian and uterine extremities of the blood supply may be perfectly easy and the overlying placenta removed without incident. In the majority of cases, however, such a pedicle is not present and we have to deal with a condition where the placenta cannot be removed at the time of operation without the almost invariable death of the mother from hemorrhage. It is this particular phase of the question I wish to bring before you this morning.

There are but two alternatives. The first, ligation of the umbilical cord close to the fetal surface of the placenta, a marsupialization of the fetal sac, and extensive packing with gauze, being careful to leave ample opening through the abdominal incision. Thrombosis promptly sets in in the placental sinuses, in the course of time separation of the placenta, completely, or more often irregularly, ultimately takes place, and the placenta is discharged through the abdominal wound, most frequently piecemeal. When the last of the placenta is discharged the wound promptly closes without incident. If infection of the tract occurs after a few days, little or no damage is done. In fact, it seems to hasten the disintegration and discharge of the pieces of placenta.

The only other alternative is self evident,—the closure of the abdominal incision without drainage, leaving the placenta in situ. Actually, it was a consideration of this possibility which led me to bring this subject before you. Some three or four years ago my attention was called to this possibility to which there are no theoretic objections. In theory, the placenta should be and as a matter of fact is, ultimately absorbed—digestible aseptic organic material can be entirely absorbed in the peritoneal cavity and such a fate is to be expected. Consequently, why drain such a case with its ensuing annoyances and discom-

fort for from two to eight weeks? Why not leave the placenta in for ultimate absorption and have a clean closed abdominal wound with prompt union? This idea is not new, it was successfully employed and reported upon by Roncaglia as long ago as 1893, but the idea seemed so plausible to me that I determined to treat my next suitable case in this manner.

Shortly afterwards, the case came under observation in my service at the Sloane Hospital. She was a primigravida of twenty-four with a characteristic history of tubal abortion or rupture at about eight weeks, for which she was treated for appendicitis in another hospital. She was admitted to the Sloane Hospital at a little over seven months because of vomiting and abdominal pain, and upon admission a diagnosis of abdominal pregnancy was readily made by the resident obstetrician and confirmed without question upon my first examination. Inasmuch as her condition was at no time the source of alarm, operation was deferred until approximately eight and a half months in order to obtain a living child, the patient, meanwhile, remaining in the hospital under observation. Through a right rectus incision, the abdomen was opened, a living child weighing five pounds, nine and a half ounces, perfect in every respect and vigorous, was extracted, and the placenta found directly in the midline in the lowest portion of the cul-de-sac attached firmly across the rectum and the lower sigmoid. Removal would have been impossible and because of the fact that I was leaving for my summer vacation the next day, and therefore could not have personal observation of the puerperium, I hesitated to deviate from the usual rule and so left in the placenta, packing the cavity. The future course of events was uneventful. The placenta was discharged complete in one piece on the seventeenth day, after which the wound closed rapidly, the patient being discharged in perfect condition on the thirty-fourth day. She has today an absolutely normal pelvis, with a child twenty-two months old weighing twenty-six pounds.

The second case came in on my service at the City Hospital last summer,—a colored woman about thirty-five years of age. She had had distinct acute abdominal symptoms since her fourth month with irregular masses in her abdomen thought to be fibroids. No suspicion of an abdominal pregnancy was entertained until at about seven and a half months at which time my assistant (I being absent on my vacation) decided to do a cesarean section because of the anomalous abdominal findings and the failure of the cervix to dilate or the presenting part to dip down. The patient was considered in labor and the diagnosis was a fibroid blocking the inlet. An abdominal pregnancy was found with the placenta to the right, attached to the parietal peritoneum

and contiguous viscera, a living child weighing four pounds, healthy in every way, was delivered. No marsupialization was attempted. A simple drain was inserted into the cavity just through the peritoneum and left in with renewals at dressings for eleven days, after which time the wound was allowed to close, no portion of the placenta having been discharged. This plan of treatment was followed as a direct result of the many discussions as to the method of treating the placenta in such cases which had been had for a considerable length of time in this vicinity and was followed advisedly. The patient made an uninterrupted recovery, the wound was healed and she was up and about in excellent general condition. The child also did well but they were not discharged from the hospital on account of the Social Service Department which had them in charge. The mass in the lower right quadrant of the abdomen was quite insensitive but seemed to diminish very little in size.

Forty-four days after operation she began bleeding slightly from the vagina and a few hours later passed several clots, two days later she flowed more profusely, more clots were passed and the general condition of the patient was much worse than one would expect from the amount of blood lost. Fifty days after operation, the hemorrhage still continuing, an exploratory curettage of the uterus revealed nothing. The uterus was packed but the hemorrhage persisted in greater degree and the patient died a few hours later.

The autopsy showed a moderately flabby and subinvolved uterus otherwise negative. The placenta was contracted incorporated with the right ovary, the whole undergoing fibrosis. There was no blood in the peritoneal cavity and no pathological changes in any of the other organs except those due to acute anemia. The cause of death as given by the pathologist was uterine hemorrhage. The question of the relationship between the absorbing placenta and uterine hemorrhage is purely problematical. Did this structure incite the hemorrhage? We know that menstruation is due to the corpus luteum. Is it possible that in some similar way the absorption into the system of the retained placenta had a like effect, inciting the excessive hemorrhage which continuing caused the death of the patient?

A. C. Beck, of Brooklyn made a very thorough analysis of the literature to date in 1919 and found that many cases had been treated with retention of the placenta without drainage with bad or at least indifferent results. In view of the unforeseen accidents which have followed as in the second case reported it would seem better to remove the placenta if so attached by a pedicle that removal is feasible or if this is impossible to pack the remains of the amniotic sac and keep the wound open until the discharge of the placenta has been accomplished.

## THE MATERNITY HOSPITAL AS A TEACHING CENTER\*

By PAUL T. HARPER, M.D.

ALBANY, N. Y.

TWO foremost requirements of a hospital are efficient care of its patients and adequate training of those who come to it for instruction. The latter takes precedence over the former if for no other reason than because without adequately trained personnel an institution cannot give its patients the care they need. On the other hand, when its corps of workers is efficient, material and what may be called professional success is assured in an institution the former because patients enter in the belief that it is a proper place to be cured for when sick and, leaving it convinced that such is the case become satisfied patients that are essential to the success of any enterprise. To be successful in the higher sense a hospital must be able to affect its cures promptly and here again, the necessity for efficient training asserts itself.

The need for the highest efficiency in training is especially applicable to the maternity hospital. Its workers must be efficient if the institution is to do as it should in decreasing mortality and morbidity associated with child bearing that are higher than they should be and that are decreasing at a rate far from satisfactory.

Two groups come to the hospital for instruction namely, members of the 'house' or interne staff and pupil nurses, and, in the same way that each group differs in its relations to the institution the latter is obligated and discharges its obligations in a different way to interne and nurse.

The former comes to the institution in search of wider experience in a field in which he already has a foundation and he considers it the medium through which material for instruction is provided. For his actual training he looks to the attending staff and how adequate it will prove depends upon his ability to be taught and upon the fitness and willingness of his professional superiors to impart instruction. The fact that he comes voluntarily is evidence that he wants what the hospital offers. Further the fact that he comes in numbers wholly adequate to supply the demand is evidence that he is satisfied his connection will prove profitable and he may be expected to work at what he considers maximum efficiency. The point is since the institution in no way is responsible either for his future success or for his failure training of the interne is more a problem of the attending staff than an actual demand of the hospital itself.

The status of the pupil nurse entering the maternity hospital without previous obstetric

training is wholly different. In the first place, she enters because she has been sent, to begin work with which she not only is unfamiliar but work that she frequently has disinterest in if not an actual dislike for.

For the latter attitude, there often are very good reasons. She may know many graduate nurses who "avoid" obstetrics and doubtless is familiar with the comment of many a practitioner that he "dislikes obstetric cases." That some of the former may be incompetent to assume the full responsibilities of the care of a case and that the latter, nevertheless, continue to "do" obstetrics quite naturally do not appeal to her with sufficient force for her to be able to settle, at the time and on its merits, the question of whether or not obstetrics is an interesting and satisfactory line of professional endeavor. That she be influenced by such comments is as unfortunate as it is natural, and the fact that, at a later day, she will realize that each obstetric case is about as interesting as one's understanding of it does not help her to incline whole-heartedly toward the work as she begins it, and a definite prejudice at that time may interfere with her attaining even a moderate degree of efficiency therein.

In the second place, the work she is to do is hard in that it is subject to such variations in amount. A striking feature of obstetric practice is that the hardest work, namely conduct of the second stage and delivery, is done at a time with the selection of which those in attendance have little to do. The work for a surgical operating-room and the time at which it is to be done are chosen and ample provision for supplies and nursing help made in advance. On the other hand, with the "emergency case," work is increased, and, in the sense that it is done at the time the case dictates, every delivery-room is an "emergency." Again the frequency with which cases follow one another in rapid succession calls for long hours and the occasional shortening or even the omission of "hours off" that the most efficient supervision cannot at all times obviate. On the other hand, the periods of delivery-room inaction the beginner loses sight of and she often is convinced early that the work at least is most irregular if not actually hard.

The foregoing are urged for the purpose of establishing a principle upon which maternity hospital training should be outlined. It must be designed to stimulate interest in the work, to keep interest sustained, and, if possible, to heighten it. When interest is aroused, the amount of knowledge the pupil gains and, therefore, the efficiency she attains are limited only by her ability to take what is given and by the faithfulness of those about in offering it.

The product of the maternity hospital should be the trained obstetric nurse, and the problems of what and how she should be taught are simplified when her attributes are considered.

In the first place, she is not to be an obstetrician in the sense that she makes diagnoses, gives prognoses, and outlines plans of expectant or operative treatment. On the other hand, she must be more than an attendant, who exercises a general supervision over cases and does as she is told. But she is to be a trained observer, capable of analyzing what she sees and of interpreting it as normal or abnormal, aware of the consequences of allowing conditions to exist as they are when cases become pathological, and capable of carrying out simple procedure that, to be efficacious, require prompt action on her part.

If she can watch the patient as intelligently as can the physician, in other words if she is a trained observer, there accrues to him with whom she is associated a saving of time, the patient constantly is safe-guarded—as much as intelligent prophylaxis can protect—against accidents and complications that entail dangers to her and to her child, and she establishes her worth in a field of real service.

Since she is not to be trained to practice obstetrics, it is apparent that her instruction need be neither as thorough nor even along the same lines as the obstetrician's. By the same token it is reasonable to insist that her training should not be an abridged edition of the obstetrician's. In other words, she should not be given a condensed course in general obstetrics even though the latter be simple in the extreme. Under such a plan of training it is possible for her to have profited but little more than though she had mastered one of the many books written for the prospective mother and had witnessed many babies being born.

In the second place, if she is to be more than an attendant, she must have more than the mere experience of having done certain things and of having seen others done a vast number of times. Unless wide experience is made use of in elaborating principles previously instilled in the mind, its worth is questionable, and, when a real test comes, may prove valueless. For without preliminary training, experience is a mere record of having done things or of having seen them done a great many times according to one's intuitive standard. It fails because it is quite impossible to be both instructor and pupil at one time. In the evolution of the trained obstetric nurse, less wide experience with cases upon which instruction has been intensive would seem to be far more valuable than care of many cases in labor, witnessing of many deliveries, and post-partum care of many mothers and babies without training in principles.

A trained obstetric nurse then is one who, having been taught principles and having been in attendance upon cases long enough to have these principles exemplified, gives her case intelligent care because she knows at all times what is going on and whether or not things are as they should

be. Because he knows her observations can be depended upon, she is the obstetrician's most valuable asset.

If the graduates of prescribed courses of training are to be trained observers it is reasonable to assume that the majority of them will measure up to such a standard. However, it is thought to be the exception rather than the rule to find the nurse so trained "knowing at all times what is going on and whether or not things are as they should be." Granted that the foregoing view is extreme and that the standard set is too high, it will not be denied that the fact that there are some who fail to measure up to an efficiency the patient demands and the doctor looks for is sufficient reason for taking up the question of training received with an idea of raising still higher the percentage of efficient graduates.

The fault may lie in the graduate herself or in the training she has received. Again, responsibility may be divided. In this connection, comparisons of instances of success and of failure are instructive. The former is not necessarily possessed of higher mentality nor is she more alert than the latter. From this it may be inferred that the principles taught are not too involved to be grasped. Again, when two nurses, after identical written and practical examinations taken at completion of the same course of training, are found to have attained to quite the extremes of efficiency, it is reasonable to infer that the course of training of itself is not at fault. But without exception the efficient nurse presents one striking characteristic: she is interested in her work. Throughout her training she has been anxious to learn, her supervisors know that her work is done well and when once assured that such conduct is highly commendable she is found to be willing to ask questions of the kind that convinces her instructors that she is profiting by what has been given her.

The foremost requirement of maternity hospital instruction would seem to be that it be made interesting. Those keen for the work may be expected to acquire efficiency therein more rapidly, while to those possessed of a disinterest in or a dislike for it the course of training will appear hard. Further, it is desirable that it appeal to the pupil nurse as being designed for her individual benefit. This attitude is fostered by its being made easy for her to ask questions and by its being as apparent to her that her interest is acceptable. To have evidence that those about her are really interested in her progress is an incentive to increased endeavor that is invaluable.

The obstetricist the pupil comes in contact with is almost entirely clinical and peculiar to it is the fact that no other branch of medicine lends itself so perfectly to profitable demonstration. The case itself and the manikin the media through which the essentials of practice are presented, are

the objective foundation upon which principles are established. The text book is valuable as a compendium of terms and general obstetric information but it does not teach principles. For these reasons it should supplement but it cannot take the place of the clinical talk and individual case instruction by those who through training and experience are best fitted to give them. Active participation of the attending and the resident staff in maternity hospital teaching seems imperative.

Not only is his instruction invaluable but a trained physician is present during at least the latter part of labor and at delivery and directs the post-partum care of each case. Accordingly, ample opportunity to impart instruction is offered him. With principles established intensive instruction upon the individual case, rather than the mere witnessing of many more, makes for the sort of experience the pupil needs.

When the latter is made to see all there is of clinical interest in each case, she is being given nothing more than her presence in the institution would seem to demand for her, and, when those responsible for her training give her such opportunities, they discharge their obligations as instructors and are justified in their demand that the product of their labors reflect credit upon the institution they represent. When less is offered the graduate may be expected by as much to be inadequately prepared, and inefficient.

In connection with maternity hospital training a question commonly raised is whether or not the pupil should be permitted to make vaginal examinations. It is considered here because emphasis has been placed on the clinical or what might be termed the practical feature of instruction. For the following reasons, the answer should be an emphatic "No."

First until one has had considerable experience in vaginal exploration examination reveals nothing more than the extent of dilatation and the latter can be quite accurately approximated by carefully noting the character of the contractions and the presence or absence of "show." Interpretation of the degree of obliteration of the internal os and thickness of the lower segment is possible only after an experience far more extensive than it is possible for any nurse in training to have accorded her.

Second, as a means of diagnosis either of presentation or of position, it is unnecessary. Presentation is so much more definitely made out by abdominal palpation and orientation of sutures presents such difficulties even to the experienced observer that vaginal exploration is more a final step in verification than a necessary procedure for the making of a diagnosis.

Third, the one procedure that demands vaginal exploration, namely artificial rupture of membranes the pupil would never be expected to carry out. The foregoing reasons are adequate

That the chances of infection would be increased or that the patient would object to the procedure are arguments that possess far less weight.

With instruction of the kind described carried as far as intelligence of the individual permits and her interest demands, the product of maternity hospital training is of immeasurable value to the community. She lightens the burdens of the conscientious doctor and helps him obtain results he is satisfied with. When associated with the indifferent or poorly trained physician, the latter's obstetric results are better if for no other reason than because he is inspired to increased efficiency. Engaged in the activities of the district nurse, fewer toxæmias will go unrecognized because of her efforts and more cases in need of the care the maternity hospital offers will be directed to it.

Finally, a maternity hospital can have no more valuable asset than a corps of graduates who believe in the institution in general and in their own in particular.

### THE PEDIATRIST AND THE MATERNITY HOSPITAL

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THE pediatricist who has the good fortune to be a part of the staff of a maternity hospital has a rare privilege. Early in his experience he becomes aware of two things: that the first month or so of life, a period which he has had the opportunity to study in individual cases and not *en masse*, is an absorbingly interesting period, and that the good obstetrician knows a very great deal about newly born infants. The pediatricist if he comes to his maternity hospital service impressed with the contribution he is about to make, soon finds his expected contribution dwarfed by what he learns from his chance to study a large number of newly born babies. He gains an entirely new viewpoint as to the care of the infant in this period, its difficulties, its relationship to the obstetrical problem, to the pre-natal period, and to the child's ascendants. He soon comes to understand and to sympathize with the attitude of the obstetrician who is a bit reluctant to turn over the new arrival at once to a pediatricist who cannot have had the same familiarity with the forces which have made this particular infant what he is and may not have had an experience which would give him what might be called the new-born point of view. Few obstetricians wish to be also children's specialists, and most welcome the time when the child may be relinquished. Every good obstetrician is, however, a specialist in the newly born be-

cause it is just as much a part of his skill and his endeavor to secure a living and viable child and to keep it alive as it is to care for the pregnant mother in such a manner as after having given birth to a healthy child she shall be well and fit for future child bearing. His thought has been given to this child for months, it is not to be expected that the cutting of the cord will sever also his interest in the baby, or that the termination of the function of the placental circulation will terminate also his ability to care for it.

This does not mean that the pediatricist is not valuable, even necessary, to a maternity hospital, although to an individual child at first his services may, perhaps, not be essential. The interest of the pediatricist in the problems of infancy is a continuing one, he looks forward to the baby's growth and development through infancy, childhood and adolescence. His interest in the hospital baby is undivided. He has no concern or responsibility in regard to the mother, except in relation to the breast-feeding of her child. He views the new born in relation to its whole life as the obstetrician does not and cannot be expected to do. He brings to the nurseries an experience in later infant feeding, in the diseases of digestion and nutrition, in infectious diseases and in the prevention of infection. If he can begin his care of the child at birth and can acquire the experience to handle the peculiar needs of this period, the ultimate results among the hospital's children will be better if only because of a continuity of interest and the avoidance of lost motion.

For a hospital service it seems wisest to place all the children from birth under the direct supervision of the pediatricist who assumes the functions of an attending and not a consulting physician to the maternity hospital. This in no sense prevents interest in the babies and the acquiring of experience in regard to them by the obstetricians also. It does, however, relieve them of a short-time problem and enables them to concentrate on what they alone can do—the obstetrical and parturient care of the mother.

In a general way the pediatricist finds that his maternity hospital work falls under three heads: (1) To conserve the existing strength of the newly-born infant; (2) to prevent his acquiring disease or injury, and (3) to secure for him the wherewithal to grow and to develop properly.

The strength with which the newly born is endowed depends upon the stock from which he comes, the care with which the mother is observed and instructed during pregnancy and the skill and judgment with which the labor is handled. In handling the first part of his problem, therefore, the pediatricist becomes

\*Read at the Annual Meeting of the Medical Society of the State of New York at Brooklyn, May 4, 1921.

vitality interested for his own success in all that may influence a child before birth. If he is not already familiar with these subjects his interest leads him to study the problems of heredity and eugenics, to familiarize himself with the effects of syphilis on mother and child, to consider toxemia of pregnancy and the various dystonias and relate them all to his problem. He appreciates more than ever the good results of properly conducted labor, judicious operative interference and the avoidance of prolonged dry births, with pressure on the child and interference with the placental supply of blood and oxygen.

The newly born with the best of antecedents and care has need of strength and adaptability. He comes from an environment where he has been cushioned, warmed, fed and oxygenated with the least possible expenditure of effort on his part. He emerges into a colder environment, his source of food and oxygen are cut off. He must warm himself, reorganize his circulatory system, establish respiratory and digestive processes and meet shocks of sound and motion as well as dust and bacteria.

The pediatricist cannot assist in the matter of the circulation, the establishment of normal respiration in so far as it can be influenced for good or evil has been attended to at the time of birth by the obstetrician. The digestive function needs little save the proper management of breast feeding. But the physical forces which assure the newly born may be tempered greatly to his benefit. Undue handling, careless handling and unnecessary noise the pediatricist can arrange to eliminate. He can impress upon the obstetrician also that care in handling the baby at birth is also his obligation. Chilling in the operating room, rough handling, particularly rough methods of resuscitation can do damage, besides causing such injuries as ruptured livers or broken bones.

It is in the matter of conserving the child's heat that most can be done. We know that the immature child has an incompletely organized heat producing apparatus, that he is unstable as to body temperature and tends to take that of his environment. We know that he does not thrive with a sub-normal temperature, that he becomes more and more quiet and difficultly aroused, takes food very poorly and does not gain. Hence incubators and hot rooms with all their difficulties of poor ventilation and low humidity. What is not so generally recognized is that the mature child who can maintain a normal temperature needs to have the matter attended to as well. If his environment be too cold, if his skin is exposed unduly, or his heat dissipated by too frequent use of water baths, his temperature curve may be quite normal and yet he will not thrive. He

burns his tissues or his food to keep himself warm at the expense of his growth. Too great a demand upon him for heat production he will first stop gaining, then become very quiet and then lose. Too often this loss is met by increasing his food which he may not be able to digest and assimilate and which may upset him, when attention to the temperature of his environment will accomplish the desired purpose and avoid digestive upset from over-feeding.

The pediatricist may learn from this what will help him in the wards of his children's hospitals, and looking after the temperature may avoid that mortality which comes with the first cold nights of fall or the early mornings of a prolonged wet spring.

So the pediatricist sees that his nurseries are of an even warm temperature, that his babies are cleansed with oil and not water, that they are well wrapped, and that artificial heat is used to keep them up to normal. This in addition to quiet and a minimum of handling, to maintain "the vital spark." And yet there are babies who do badly and succumb in spite of all. Such are the babies of prolonged, particularly of dry labors, the babies of toxic mothers, the babies with congenital syphilis. Anatomically they may be wonderful specimens, functionally they may lack the force to survive. The pediatricist exhausts all his skill on these cases until he learns that this is a class of baby all to itself, and in this class he is likely to fail. Fortunately not every small baby is weak or every weak baby irreparably damaged before birth, most of them may be reared if a constant attempt be made to keep them in warm quiet nurseries and to handle them carefully. "Gently does it" is an excellent motto for the handling of the new born.

In the prevention of injury to the newly born, which is chiefly the prevention of infection, the pediatricist finds much to do, and here he can apply with benefit all that he may have learned of epidemiology and preventive medicine in older children and all his experience in infectious diseases.

For to be newly born is almost to invite infection. The new born, it is true, usually has an acquired immunity to the exanthemata, but he certainly has not to the suppurative infections. Not only is he susceptible, but the delicacy of his integument and mucous membranes makes every point upon the physiological exterior of his body a potential portal of entry for infection. He passes through a parturient canal decidedly not sterile and perhaps infected with the gonococcus. In addition, he is presented with an open wound at a very early moment of his existence. If he is born in this part of the country, nine months out of the year he almost surely will have about him



one or more persons with respiratory affections to which he is particularly susceptible, and among the hospital babies there are some with congenital syphilis

To protect the new born from all that assails him is no mean task, even assuming as we of course do, that in every detail the obstetrical technique is perfect and nothing is introduced by the surgeon to the wound he makes in cutting the cord. If the cord is infected, it needs more than a pediatricist to combat the resulting septicemia.

Respiratory infections can be almost completely eliminated by the separation of baby from baby and permitting no person with respiratory infection to work among the babies. Individual baskets with cloth sides for cribs, carriages which carry crib and baby to the door of the mother's wards, where the baby can be handed to the mother for feeding and then back to his own basket, have practically wiped out respiratory disease from the Sloane Hospital for Women as the use of silver salts has done everywhere with ophthalmia neonatorum due to gonococcus.

The possession of a septic ward for mothers and one for babies, where the box system may be carried out and aseptic nursing may be maintained, helps limit the spread of the impetigos, the cases of pustular dermatitis, and furunculosis, which occasionally occur. More difficult the non-specific conjunctivitis which occurs and spreads widely.

Of course the most important infection of the maternity hospital is sepsis in all its manifestation of fever, jaundice, hemorrhage, abscesses of lung, liver, etc., and with the usual fatal ending. But sepsis in the new born is not very common in our experience, and certainly not in its spectacular forms mentioned above. It is insidious in its onset, and one of the things the pediatricist comes to realize is that a baby without fever, without local signs of inflammation, without jaundice and hemorrhage, may yet be septic and will presently die. Apathy, failure to gain (or persistent excessive loss) a poor color, cold extremities, may for days be the only signs in a child, who, dying, shows at autopsy a liver studded with abscesses and an umbilical vein of a suppurating clot. This obtains in other than cord infections. A streptococcus meningitis may come from a naso-pharyngitis, a general sepsis may follow infection while retracting the foreskin. So susceptible is the new born infant and so insidious the onset of sepsis that we have come to feel that any case of persistent loss of weight, or marked inactivity, sepsis should be excluded by blood examination or otherwise as one of the first steps to be taken, and that any procedure which may by the merest possibility cause traumatism or open the way for bacteria should be omitted

or postponed in these babies. This means avoidance of wiping the mouth, the insertion of rectal tubes and the elimination of retraction of the foreskin if urination is possible.

The third section of the pediatricist's problem, the providing for the infant that which will permit him to grow and to develop is peculiarly within the province of the pediatricist whose familiarity with infant feeding in all its phases gives him a more comprehensive view of the problem than the obstetrician can have. Yet here, too, he has much to learn, for he must approach the problem of feeding the newly born with an appreciation of what has happened and is happening to the mother obstetrically.

Providing the wherewithal to grow and develop means, in its most desirable solution, the giving of breast milk. And besides, all he knows about the secretion of breast milk, the stimulation and maintenance of its supply, the pediatricist must be able to appreciate and estimate how it is affected by the general health of the parturient woman, the presence of toxemia, sapremia or sepsis, excessive prostration from the effect of the labor, nervousness or nerve exhaustion, the effect of the hospital *per se* upon the mother, her possible inability to digest the undoubtedly excellent but unaccustomed and perhaps distasteful food she receives. The proximity of the problem to the day of birth and its occurrence in a hospital thus make it different from what he usually meets. And he has to add all this to his previous experience.

The management of breast feeding in its inception is a little different from that after the obstetrical period when the mother has returned home.

It is important to establish a regular and complete emptying of the breast, the most important and perhaps the only real stimulation to the secretion of milk. It is of aid to establish as early as possible a convenient rhythm in the occurrence of the periods of active secretion, and this may be done by putting the child to the breast at the interval it is desired to continue from 12 hours *post partum*. It is possible to avail one's self of the convenient 4-hour interval, convenient alike from the administrative standpoint and the comfort of the mother by applying the young stimulus to both breasts each time, which is logical since milk is secreted in both breasts simultaneously. This gives a 4-hourly emptying instead of a 6-hourly as when 3-hour intervals are used and one breast only. That great preventive of successful nursing, the cracked nipple, occurs almost never, even when this interval is begun so early, if the duration of the nursing at first is very short and progressively lengthened, say, 3 minutes at first, increasing to 8 each side

The baby is thus not allowed to chew for 20 minutes an unproductive and exquisitely sensitive nipple.

The mother who has a good family nursing history, whose breasts are sound and nipples erectile, will usually establish a rather abundant secretion between the third and the fifth day, and from this time the child will gain. This implies a good pumper in the person of the child. But all children are not good pumpers. Many are inert or apathetic even though large. The premature and the very small babies usually are not, and sometimes in very small babies the expenditure of energy in nursing is the last straw. For such, expression and gavage or the Breck feeder are necessary.

We have come to expect the initial loss in weight on the baby's part. This is of course partly mechanical loss due to expulsion of meconium, and physiological due to the demands of metabolism. Commonly a loss of 6-8 per cent does not excite alarm, but there are some babies who cannot afford to lose, they are already so small. Such must be fed from birth, and in particular supplied with fluid to their requirements. For such babies borrowed breast milk should be given at once by medicine dropper, Breck feeder or gavage, and in default of this a diluted boiled whole milk mixture or dry milk. The latter is particularly valuable in prematures.

This loss is very largely water loss due to insensible perspiration and respiration. This may be demonstrated by a study of the metabolism of the newly born infant and the concentration of the blood. The curve representing which is related to the weight curve, much as is the curve of the so-called manition fever observed in infants who lose much.

Not every mother by the fifth day has an adequate supply of milk particularly in the maternity hospital, and complementary feeding must be resorted to temporarily if the vicious circle of a losing child, a weaker pump, a poorer stimulation, a diminishing milk supply is to be avoided. Here the pediatricist is in his element but he should remember that here simplicity in his formulas spells success and overfeeding is to be carefully avoided.

The regaining of birth weight has been declared often to occur normally on the tenth day after birth. In a hospital it may, but does not constrainly. It is helped to occur by limiting or preventing initial loss by prompt recognition of insufficient breast milk both in quantity and quality by the intelligent use of complementary feedings and by careful attention to the diet of the mother often inadequate to her threefold task of maintaining her own metabolism, manufacturing milk, and supplying the nutriment of the milk. In the maternity hos-

pital cases it often happens that a baby who does little more than maintain its fifth day weight during the stay in the hospital on breast and complementary food will yet, when he goes home, receiving an adequate supply of food as the mother re-establishes her accustomed diet and regimen, gain rapidly and satisfactorily on the breast alone.

The scope of this paper has precluded more than an outline of the work of the pediatricist in the maternity hospital, and we must leave untouched the interesting questions of the treatment of hemorrhages, of congenital syphilis, of the various malformations and injuries which occasionally appear as well as the details of the feeding problem. If I shall have provided material for discussion of this whole subject I shall be content.

I must, however in closing, emphasize the close interrelationship of the obstetrical and the pediatric work and insist that neither obstetrician nor pediatricist can succeed without an appreciative knowledge on the part of each of the other's work and problems.

#### Discussion

DR CARL G. LEO-WOLFE Buffalo: We must all be grateful to Dr. Haynes for his very interesting and exhaustive paper on a subject which has been the bone of contention between the obstetrician and the pediatricist for a long time and which shows that the pendulum is swinging over to the side of the latter.

In one of the hospitals with which I have the pleasure of being connected, I have, for some time, assumed general supervision over all the new born as long as they remain at the hospital. Any baby which is under suspicion of infection goes at once into the quarantine nursery. This is the only way of stamping out the hospital epidemics of pemphigus or impetigo, grippy infections, and so on. I have had a glass door put into the nursery and nobody except the physicians and nurses are allowed to enter. Whenever the members of the family want to see the infant it is brought to the door to be viewed through the glass. In this way we have been able to reduce the number of grippy infections materially. We also keep an hourly temperature chart of the nursery, and this has helped to reduce the variations which before were sometimes rather large. We used to have some babies, one or two, with fever and I found that these were the babies next to a steam pipe. Since having a jacket placed around the pipe the condition has been improved. I personally, want to thank Dr. Haynes for bringing out so many interesting and important points.

DR WALTER LESTER CARR New York City: I agree with Dr. Haynes' conclusions as to the need of co operation between the obstetrician

and the pediatricist and his feeling that such co-operation is coming closer. In the obstetrical institutions we observe less gross infection, but there is a likelihood of infection from staphylococcus and influenza. Good nursing in the management of premature and weak babies is essential. Follow-up methods in the care of babies should be made a routine in obstetrical hospitals, so that the baby is seen after leaving the hospital, and the charts used should be such that they can be utilized for return visits.

DR H L K SHAW, Albany. It is doubtful if any member of this section would question the advisability of a closer co-operation between the pediatrician and obstetrician. This is a very timely and important contribution to modern pediatric literature, but I feel that it should have been presented before the obstetrical section. Outside a very few maternity hospitals in New York and Buffalo the pediatrician is never called in to care for a new born baby unless it is dangerously ill or dying, and then his main function is to help share the responsibility with the obstetrician. Let there be a closer co-operation—the pediatricians, I am sure, are anxious to bring this about.

I would only like to add that on one occasion I saw the temperature of a premature infant up to 110° F., due simply to the too liberal use of hot water bags. With properly used hot water bags the temperature became normal, and the baby seemed none the worse for its short hyperpyrexia.

DR DAVID R LLOYD, Brooklyn. The good fortune is not wholly on the side of the pediatricist. The maternity hospital having the services of the pediatricist is equally fortunate.

Only by the complete supervision of ever detail in the care of the new born can the highest efficiency be obtained in saving and starting aright many of the babies as has been shown by the writer.

The experience and knowledge of the obstetrician in a real maternity hospital has been wisely correlated with that of the pediatricist. Added to this dual advantage is the necessity of specially trained nursing care of the new born.

Many of the new born are no more than one-half or three-fourths of a baby. This fractional estimate of such an infant to the nurse and mother has been of help in securing better co-operation and closer vigilance.

The expression of breast milk is a practical and essential procedure. Telling the nurse how it is done is not adequate. She must actually be put to milking. With gentleness, no nipple or breast complications have developed.

In the general hospital having a maternity service the question is a bit complex for the obstetrician. Evidently it is felt by him that the public is not yet educated to the advantage

and necessity of separating the baby from obstetrical care, although the obstetrician from his own conviction and choice feels that the baby should be cared for by the pediatricist.

That the sick baby and premature new born, also nursing problems, shall be directly supervised by the children's service is the accepted present procedure in the maternity service at The Brooklyn Hospital.

## TREATMENT OF ACUTE OTITIS MEDIA IN CHILDREN

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**T**HERAPEUTIC procedure, like the swing of the pendulum, makes wide excursions toward both extremes before the normal rhythm is reached. Thus, in considering the treatment of acute otitis media there is on the one hand the period before myringotomy was practised, when an acute ear infection was permitted to run its course without interference, and on the other the period after myringotomy was introduced, when an incision of the drum in practically all cases was considered the desirable procedure. More recently there has been a distinct tendency toward a middle course, and it is in support of such a tendency this paper is offered.

The pediatrician is in a particularly favorable position to study these cases since the routine examination of the drums of all children permits earlier observation than is vouchsafed the otologist. It is a mistake to consider acute otitis media in its earlier stages as a separate disease since a congestion of the middle ear exists probably in all cases of acute naso pharyngitis, and if one bears this fact in mind one may expect a clinical course similar to that found in the naso pharyngitis, and, as a matter of fact, the naso pharynx is a fair indicator of the condition in the middle ear. The treatment of the otitis resolves itself into the treatment of the naso pharynx.

In what follows there is no criticism of the mastoid operation or of myringotomy. There are few surgical procedures which give more brilliant results therapeutically or have a greater potentiality for saving life when used in proper cases.

The indications for these procedures alone are here discussed.

Chronic otitis is not considered. Despite the remarkable advance in medicine and surgery, therapeutics must still rest upon clinical experience based upon such scientific knowledge as may be available at the time.

In the treatment of acute otitis media the question arises whether early opening of the

\*Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 3, 1921.

drum membrane is practised today gives better results than did the treatment as carried out by older generations, when nothing of the kind was done

Is there less chronic otitis?

Is there less late deafness?

Is there less mastoiditis?

Is there less of those more serious sequelæ, sinus thrombosis, meningitis or brain abscess?

The answer, we believe must be in the negative

The conclusions here reached are based upon a clinical experience of over twenty years. In common with others we were taught that acute otitis media with temperature and bulging drum required immediate incision of the drum if mastoiditis and deafness were to be avoided.

After a few years of such practice the following incident caused deep reflection. In one household there occurred an upper respiratory tract infection which soon involved the middle ear. Myringotomy was performed within the first twenty-four hours of the onset of the otitis by a competent otologist. Despite this in a few days the mastoids of two of the three cases required operation. Although recovery was excellent, it was a shock to know that one of the chief reasons for early myringotomy was in these cases not valid.

From this time forward, not without misgivings which faded only with experience, myringotomy was delayed first for a few hours, then for gradually increasing intervals of time until finally after years it was delayed long enough to show that in most cases it was unnecessary.

The following is the course of treatment pursued with an ever increasing faith that the dangers of acute otitis media in children are minimized thereby. The patient is put to bed and given a cathartic.

1 For the pain, opium in some form internally usually paregoric, in sufficient doses to control it. For an infant of two to four years old, 20 drops in sweetened water every 20 minutes until relieved regardless of the number of doses required. Older children proportionately more. It is surprising that in the majority of cases after the initial pain has passed, it does not recur.

2 Any of the customary glycerine containing ear drops instilled into the canal at three-hour intervals.

3 Hexamethylenamine, twenty grains in the day unless vesical irritation ensues.

4 The treatment of the naso pharyngitis by the instillation of weak iodine silver or salt solution through the nostrils two or three times daily.

This is certainly not an original nor a complicated procedure yet it is surprising to find in a child with high temperature, severe

earache and a red, vastly bulging drum, how promptly the symptoms subside. The recession occurs in the order of (a) pain, (b) temperature, (c) bulging. The time required for this recession of symptoms is a matter of three or four days. If at the end of this time pain has recurred or has proved persistent, with no tendency toward improvement in temperature and general condition, then myringotomy is indicated.

Why not open the drum at once when it may become necessary after three or four days? The answer is that a discharging ear is mostly avoided, and complicating mastoid disease and sinus thrombosis are relatively rare.

There are very good reasons for this.

1 General surgery is more and more reaching the point of delaying operative procedure in the stage of acute inflammation except in the field of imperative surgery.

2 Incision of the drum before an agglutinative inflammation has joined its various layers and obliterated the lymphatics and vessels, permits infection to travel back to the mastoid process and deeper structures.

3 Infection of the middle ear is simply a part of an infection of the naso pharynx, and as such has a natural tendency to subside in just the same way as a naso pharyngitis, and as previously stated, the throat may be used as an indicator of the state of affairs in the middle ear.

4 It may be urged that a cardinal principle in surgery is that pus wherever found under tension should be evacuated as early as possible. In the ear there is a natural opening the eustachian tube through which such evacuation may occur and removes this particular collection of fluid from the general rule.

5 The various accessory sinuses of the nose are probably not less frequently involved in acute infections of the upper respiratory tract than the middle ear, and yet up to the present immediate surgical intervention, except in rare instances, has not been urged, nor is it required.

The personal experience, however great of one individual is inadequate. When, however, that experience in a special disease covers two periods each one given over to a special type of treatment and one was marked by complications of such severity as to give the impression of dealing with a dangerous and serious disease and the other so free of these that the opposite impression is created, then the value of personal evidence is enhanced.

For nearly five years in my private practice, during which time I have observed approximately 1 000 cases of acute otitis media, I have had no case of operative mastoid disease and an exceedingly small number of cases requiring myringotomy. In former times a year

rarely passed without one or two operative mastoid cases. It is not to be understood that by following the method of treatment described mastoiditis and the graver complications do not occur, their incidence, however, would appear to be diminished.

Although many cases have been under observation for more than ten years, there is no case of diminished or abolished hearing following this method of treatment.

It may be urged that probably mild types of infection were observed. Although only occasional bacteriological examination was possible, all types were found, including streptococcus mucosus.

Spontaneous rupture occurs in a relatively small number of cases, and these cases usually clear up in a few weeks.

To view the problem from another angle, the following statistics based upon 100 consecutive cases requiring mastoid operation in the private practice of Dr. Seymour Oppenheimer, who very kindly placed them at my disposal, and which coincide with those derived from a smaller group obtained from other sources, although not conclusive, bear out the contention that early myringotomy does not prevent mastoid involvement.

"In seventy-two myringotomy was performed.

"In twenty-eight spontaneous perforation took place.

"Of the seventy-two cases myringotomy was performed in six on the first day, thirty-two on the second day, twenty-six on the third day, three on the fourth day, and five on the fifth day. The day stated on which the drum was opened refers to the time from which the patient first complained of the ear.

"Most of the seventy-two cases were associated with an acute head infection.

"In six of the twenty-eight cases myringotomy was necessary owing to a narrowing down of the perforation."

That the more serious complications are not prevented by early incision of the drum may be illustrated by the following small series of cases seen recently in the practice of other physicians. Of six fatal otological cases, five dying of meningitis and one of brain abscess, four were incised within the first forty-eight hours and two ruptured spontaneously, the relationship approximating the percentages of the mastoid cases cited by Dr. Oppenheimer.

Of three cases of sinus thrombosis of the obscure clinical type, the otological conditions having apparently cleared up, all three had had myringotomy performed on the first day.

Whether adequate statistics will bear out the above the future must show.

One conclusion, however, is justifiable, *i. e.*,

that early myringotomy in many cases does not prevent the more serious complications of acute middle ear disease.

#### SUMMARY.

1. Contrasting a period of treatment of acute otitis media in children where early incision of the drum was practiced, with another period during which all attention was paid to the treatment of the naso-pharynx, the latter period required few incisions of the drum and complications were practically absent.

2. The treatment consists as follows:

- (a) Rest in bed and cathartic
- (b) For the pain, opium, usually in the form of paregoric in frequent repeated doses until relief is obtained
- (c) Any of the customary glycerine containing ear drops instilled into the canal at three-hour intervals
- (d) Hexamethylenamine, twenty grains in the day unless vesical irritation ensues
- (e) The treatment of the naso-pharyngitis by the instillation of weak iodine, silver or salt solution, through the nostrils two or three times daily.

3. Early myringotomy should rarely if ever be performed.

4. Delaying this procedure to the fourth or fifth day and then performing it only when there is no tendency to improvement appears to diminish the frequency of complications.

5. Spontaneous rupture of the drum occurs relatively infrequently being followed by a satisfactory course and complete recovery as a rule, enlarging of opening being required only occasionally.

6. The hearing is not impaired.

7. A small collection of cases of operative mastoid disease, meningitis, brain abscess and sinus thrombosis shows that 60 to 70 per cent had a myringotomy performed within the first seventy-two hours.

#### Conclusions

*First*—That complications of acute otitis media occur despite early myringotomy.

*Second*—A large personal experience would indicate that on the contrary such complications are more likely to follow.

*Third*—Early myringotomy is neither desirable nor necessary.

#### Discussion

DR. LINNAEUS E. LA FETRA, New York City. With much of what Dr. Haas has said I am in entire accord, but with me the pendulum has not swung so far in the direction of not performing myringotomy. When there is persistent redness and bulging of the drum, after

twenty-four hours of conservative treatment, I think it wisest for the drum to be incised.

As to early symptoms, complaint of pain in the ear, if present, is, of course, important, but young infants do not localize their pain very well, and frequently a baby will cry and put his hand on the abdomen, when examination will reveal a bulging drum as the cause of the discomfort.

As I have said before in a discussion of this subject, rolling the head or putting the hand to the ear are suggestive, but often they have no significance. Absence of any complaint of pain, or even of general restlessness, is no proof that the ear is not inflamed. Temperature elevation is nearly always present, but this also, like pain, may be absent even when the drum is bulging. Tenderness in front of the ear is a very reliable sign, but this, too, is occasionally lacking, even when there is high temperature and bulging of the drum. Moreover, many children deny tenderness, in spite of the involuntary wincing of the mouth. Stiffness of the neck is occasionally present even without enlarged lymph nodes under the mastoid muscle and without mastoiditis. To sum up the indications of middle ear disease, a bulging drum is the only diagnostic sign. On examination, retraction of the drum and in addition some redness, is frequently the first sign of inflammation in the rhinopharynx and often confirms a suspicion of acute rhinitis as cause for fever up to 102 or 103 F., when there is as yet no running or stuffiness of the nose. The next sign of ear involvement is some redness along the malleus and the next, some fullness and redness of Shrapnell's membrane. These signs are present so commonly with head colds in children, and subside so readily that this small degree of otitis can be considered a common accompaniment of acute rhinitis.

The next signs that appear mean an otitis media, namely, redness and bulging of the drum membrane, first behind and later in front. Occasionally the drum looks only gray, owing to thickened epithelium, which must be removed to get a view of the drum itself. The retraction meanwhile increases and the appearance of the drum is that of a small red ring or doughnut. When accompanied by a high temperature these signs are sufficient justification for incision of the drum, but by far the larger number of such cases will subside in a day or so if the nostrils are treated by a weak epinephrin solution and hot irrigations of the ear are employed. I find that most otologists incise such drums, and the practice is undoubtedly justifiable, for such an ear will frequently return to normal more quickly after being incised than if not opened. I have seen this in many cases when both ears became in-

flamed successively and in which the second one was incised. I appreciate fully the dangers of fulminating mastoid, and am aware that the knowledge and experience of such cases is the reason why the otologist practically always makes an incision when he sees a bulging drum. And yet, the making of an open wound with the dangers of additional infection from the outside has seemed to me a procedure to be avoided, if possible, without risk to the child. It is only when the temperature is high, the pain acute and the bulging marked that I have deemed it best to incise at once. The infrequency of mastoid complications and the very satisfactory results of conservative treatment are my justification for awaiting further indications than those of the day of onset. If the tenderness elicited by pressure on the tragus increases, if there is tenderness of the tip of the mastoid, and if the temperature remains high after twenty-four hours and the bulging persists, incision is necessary.

The myringotomy should be done under anesthesia, preferably chloroform, though an exception may be made to this rule if the patient is an infant and only one drum is to be incised. The incision should be a J or U shape, and should be carried well upward. Irrigation with hot boric acid solutions immediately after incision is of advantage, and it is always satisfactory to hear the child gulp or swallow during this irrigation, as this shows a free opening through the drum, with passage of the irrigation fluid into the throat. The temperature, the pain, the tenderness in front of the tragus, and the tenderness of the tip of the mastoid—if that has been present—should all subside after two or three days. It is quite common, however, for the temperature to remain elevated until the discharge becomes purulent. This may be two or three days after the incision.

Mastoid involvement has been, in my experience, a very infrequent complication of middle ear disease, among infants in hospital practice not more than 1 per cent, and in private practice not more than 2 per cent. There is however great variation in different years. For several years I saw not a single case in private practice, the next year six or eight, and then a number of years only one or two cases.

The chief reliable sign of mastoid inflammation is sagging of the posterior superior quadrant of the drum with the adjacent wall of the canal. Tenderness above the tip on a line directly behind the meatus at the site of the mastoid emissary vein, and tenderness of the upper part of the mastoid in the region of the zygoma are very important if they can be elicited. Other suggestive signs are a profuse discharge or the sudden cessation of a profuse discharge. In little babies, and occasionally in older chil-

dren an edema over the mastoid process is important. It should be emphasized that vacillations of temperature without the canal signs are not reliable, though if these temperature elevations are continued and unexplained by pneumonia, pyelitis or by gastro-intestinal disturbance, they must be regarded as pointing to mastoid involvement. If successive blood counts show an increase in the number of polymorphonuclear cells and in the total leukocyte counts, they are also valuable, but single blood counts are of little importance since the blood in children is susceptible to a polymorphonuclear and total leukocyte increase.

I have said nothing with regard to operations of mastoid and sinus, because they belong distinctly to the realm of the otologist. My plea to the general practitioner and to the pediatrician with regard to ear infections in children is that careful routine examination of the ears be made in all cases in which fever is present. It cannot be emphasized too often that, to the man who treats children, the otoscope is just as necessary as the stethoscope.

DR SEYMOUR OPPENHEIMER, New York City. I do not believe in allowing a spontaneous perforation of the tympanic membrane to take place, as nature makes a bad surgeon, and usually these spontaneous perforations are insufficient to properly drain the middle ear space, and have a tendency to close too soon, and symptoms of retention occur. On the other hand, I disapprove of the wholesale myringotomy which is practiced upon cases which simply have reddened drum membranes. This latter condition occurs in a large majority of cases of infection of the upper respiratory track, and in the acute infectious diseases of childhood. The indication for myringotomy is the evidence of an exudation forming in the middle ear space and depending upon the virulence of the infection, determines whether this occurs early or late in the course of an acute otitic inflammation.

When myringotomy is performed without regard to proper aseptic conditions of the external auditory canal there is possibility of carrying an infection from without.

In the question of the treatment of acute otitis, I am very partial to the secondary method of keeping the canal free from secretions, which tends to keep perforation in the drum membrane patent.

Treatment of the naso-pharynx and of the para-nasal sinuses is of the greatest importance, as it is from these locations that the otitic process secondarily develops.

DR PERCY FRIDENBERG, New York City. It must be borne in mind that otitis media is no more a uniform clinical entity than conjunctivitis. A gonorrhoeal form is one thing, a

catarrhal form another. There is a type familiar to otologists and pediatricians, as well, generally associated with adenoids and tonsils, with relapsing head colds and slight earache, with little systemic reaction, and a tendency to early spontaneous perforation of the drum with an almost purely mucoid discharge. High temperature is rarely noted, and there is little tendency to extension into the mastoid cells. This form which I have called otitis media propagata rarely requires myringotomy. Where it does, and in every case in which the drum membrane is opened, suction-evacuation should be used. I was glad to hear this procedure mentioned because I wrote about it rather extensively some ten or fifteen years ago, and urged it, not only for removing pus but also to induce reactive hyperemia in the middle ear cavities and to keep the incision in the drum membrane open. Some forms of otitis are virulent and extend to the mastoid cells before there is marked bulging of the drum. I cannot see any comparison between the very visionary danger of infecting the middle ear in doing a myringotomy under surgical asepsis, and damming up micro-organisms and pus behind the drum, and so back into the antrum. Agglutination of the layers of the drum in the course of inflammation is theoretical. Certainly infection does not extend through that membrane, but in the opposite direction, inward.

DR Z. SHARTIN, New York City. Acute otitis media is not a primary disease. It is a complication of an infectious disease, as one of the exanthemata, or it is a concomitant of a naso-pharyngitis. In many instances the acute inflammation of the middle ear will subside when the original disease subsides, and no incision of the drum becomes necessary. But there is a tendency by many to consider an indication for incising the drum as long as there is redness. Of course incision should be done when there is bulging or after due consideration and reasonable waiting the elevation of temperature does not subside and every other complication excluded, then the incision becomes not only necessary but imperative.

## TUMORS OF THE BLADDER \*

By JAMES N. VANDER VEER, M.D.,  
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WITH the greater observation and examination of cases required in these days, and I speak now of the demands made on the general practitioner, and the surgeon in smaller communities, each of whom must be alert in the symptomatology of hitherto neg-

\*Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 3, 1921.

lected cases, the urological surgeon is beginning to come into his own in his chosen field.

By dint of hard work and steady attention to details he is receiving his just due in the reference of cases for study and operation and, therefore is depriving the careless or unskilled surgeon of cases formerly looked upon by the physician as hopeless, from sad experiences in the latter's practice, the blame for which must be divided between them.

Kelly (No 1) has tritely put three maxims on the books of medical literature relative to suspected tumors of the bladder, which I wish might be displayed on a "watchful card" before each physician as he sits at his desk. He says, "Extreme watchfulness is necessary at three stages in all vesical neoplasms."

A It is of the utmost importance to get the case under examination and treatment at the earliest possible moment. This can only be done by investigating at once and tracing to its source the slightest urinary hemorrhage.

B When under treatment the case must be watched over a period of several months or longer until all trace of the disease has disappeared.

C All these cases require watching at intervals of at first a few weeks, and then of months for several years in order to catch any recurrence in an early stage."

How many of us urologists true or attempted to say nothing of busy operating surgeons are prone to neglect these maxims?

The increasing literature however, mostly from the pens of those who are following this special line of work is beginning to show that success is gradually being made in overcoming the empiricism of physicians, the fear of patients, and the slothfulness of surgeons too prone to operate without due study of a case and its best means of being combatted as well as the neglect of after care for a permanent cure.

How needful are these observations, can be readily understood when we note Warner Jones' (No 2) statement that "tumors of the bladder occur in about 3 per cent of urinary cases." And quoting Albarran says that "78 per cent of all tumors seen are in the male sex."

And Geraghty (No 3) states that his experience has yielded a 30 per cent recurrence in cases treated with radium.

When a patient of any age, begins to show any disturbance of the function of urination it behooves his physician to set this problem before himself immediately and to desist from the accustomed placebo prescribing as we so often see.

We, of the larger cities, need to reach out to our brethren in the surrounding towns as was done by our forebears in the campaign against carcinoma of the uterus, and impress upon them the offer of better diagnosis given early for the

benefit of the lay member of the community and thus offset the tendency toward the isms of the present day.

Given a patient with a urinary disturbance of a few days or many years, frequent urination, burning at any part of the act, painful especially on completion, heaviness in the bladder region, itching, possibly along the vertebral column, interruption in evacuation, and with pus and sediment in the urine, continuous or intermittent and then with microscopic blood, which often escapes the physician's notice through non-use of the microscope, till the patient himself remarks of the blood, the halt must be called on dragging by any fair-minded doctor and further investigative work pursued at the hands of a more competent or specially trained physician.

We must declare in these types of cases, no delay can be excused!

The condition beyond the meatus is a sealed book and the pages must be cut the condition brought to the light of day.

It is not such a hard matter to make ordinary differential diagnosis of bladder conditions—especially in tumor presence if one has the proper instruments the skill and the resourcefulness. Not that I would advise every physician to rush to the nearest shop and purchase a cystoscope, of whatever make the salesman wishes to foist upon one, for in so doing he does not render service to his community, but rather harm.

Better for him to make a special study of the urological tract and then select the type of instrument which best befits his interest.

So provided with training and with equipment he is competent to proceed in his work. And the cystoscopist should be the operating surgeon, or at the very least the right-hand and guide of the operator.

By means of cystoscopy can the majority of tumors be diagnosed?

There are however, given cases which each and every one of us has seen where cystoscopy cannot be done. In an article by Pfahler (No 4) he points out these impractical cases:

- 1 Because of the severe pain in some of the examinations

- 2 Because a cystoscope can't be passed (malformations congenital or acquired of the urinary canal or bladder neck)

- 3 Due to extreme hemorrhage

- 4 Because of the patient's objections (A cystoscopic examination is as welcome to certain patients from hearsay as would be a visit from the devil himself.)

- 5 At times no cystoscopist is at hand

To these might be added several others.

- 6 The incompetency of the cystoscopist, personally or because of lack of proper instruments.

- 7 Previous operations on the bladder which have caused great deformities.



For such types of cases he has developed an X-ray technic for which successful claim is made

I utilized a similar method unwittingly some years ago, during some experimental work with air inflation of bladders followed by X-ray pictures. The shadow shown us by the radiographer and attributed to gas in the bowel, I now know was the tumor shadow and we were ignorant of its interpretation.

He suggests preparing the patient in the usual proper manner for any X-ray work of the genito-urinary tract. Then making an anterior and posterior plate to note if calculi are present in the empty bladder. He then prepares the urethra and passes a large sterile catheter, aseptically. To this is connected a piece of glass tubing with a cotton filter and distally is attached a rubber tube and inflating bulb. The bladder is injected with air till the patient feels the distension. The catheter is clamped off, and anterior and posterior plates are made. The shadows thus shown of the tumor must, however, be properly interpreted and he claims to be able to locate growths as small as a thimble.

Using his technique I have diagnosed, proven by cystoscope, and operated a growth the size of a robin's egg.

This addition in diagnosis may well be tried where a cystoscopist is not at hand, where the increasing number of X-ray machines is creating radiographers almost daily, for it certainly is easier of technique than cystoscopy.

Occasionally I have tried, in conjunction with our radiographer, various solutions to see if a sharp definition of a tumor could not be outlined by some solution. But I have yet to find a suitable solution, and have misinterpreted diverticula of small dimensions, read through the bladder wall or retained portions of the solutions.

Of course one may diagnose a bladder tumor in most cases by direct visual inspection, made through a suprapubic incision, very occasionally this is done when the organ is opened hurriedly because of some alarming symptom such as hemorrhage.

In the main this is poor urological surgery for one might unwittingly trespass upon the growth area in opening the organ and thereby create a transplant to the detriment of the patient.

Contrary to the views of some, I firmly believe in opening the organ in most cases of tumors, thereby giving one ample room to work in, and time to decide on the best procedure.

This, of course, is not necessary in small papillomata to be treated by fulguration through the cystoscope. No matter how a tumor may be diagnosed and classified it should never be forgotten that an X-ray of the parts should be taken, especially of the spine in the hunt for metastases.

It is interesting to inquire of surgeons and urologists as to their classification of tumors of the bladder. How often has one heard the remark, "All tumors of the bladder seem to be malignant, or have a potentiality of this nature." Clinically, of course, all of us have extirpated a tumor, pronounced by the pathologist as benign and felt satisfied with our work; only to have the growth return to our chagrin—and only by good luck having a second look at it.

In many instances it cannot be determined as to whether a bladder growth is benign or malignant by simple visual inspection. The pathologist himself is puzzled many times to give a prognosis, from even a section.

Braasch (No 5), however, lays down the three premises that

1 Malignant tumors tend to bleed easily, necrose and incrustate

2 Malignant tumors usually have a meaty, heavy appearance with a thick pedicle

3 And a cystitis is usually present to a degree

In relation to these three premises it is well to bear them in mind when utilizing radium in treatment as will be mentioned later.

Geraghty (No 6) tells us that the pathological classification proposed by Kuester and Albarran is almost universally accepted.

To this Danforth (No 7) and Corbus (No 8) have added a subheading "Granuloma," proposed by reason of finding a bladder growth of syphilitic origin, which produced all of the symptoms and appearance of a tumor.

This classification appears as follows

#### I—NEOPLASM

- 1 Tumors of connective tissue origin
 

(a) Benign	(b) Malignant
Fibroma	Sarcoma
Myoma	
Fibromyoma	
Angioma	
Rhabdomyoma	
Myxoma	
Chondroma	
- 2 Tumors of epithelial origin
 

(a) Benign	(b) Malignant
Adenoma	Carcinoma
Papilloma	Adeno—
Cystic tumors	Squamous
	Scirrhus
	Papillary
- 3 Tumors of obscure origin
  - Hydatid cysts
  - Dermoid cysts
  - Cholesteatoma

#### II—GRANULOMA

- 4 Tumors of infective origin
  - Secondary lues—condyloma
  - Tertiary lues—gumma

Fortunate is that operator who has a pathological laboratory near at hand where a frozen

section can quickly be made to determine the pathology of any given growth—especially in bladder growths, for it may determine for him the extent to which he should go in attempting surgical—excision—intervention

Corkey (No 9) in a study of specimens from the Mayo Clinic accepts the findings of MacCarty as to other forms of carcinoma elsewhere and uses the terms primary, secondary, and tertiary cytoplasia and differentiation, for his pathological differentiation, stating as follows "Primary cytoplasia is applied to the disappearance of cell layer No 3

"Secondary cytoplasia is applied to the disappearance of the first or base layer and the change in morphology of the remaining cells to carcinomatous type

"Tertiary or migratory cytoplasia is applied to metastasis with noted metaplasia

"If serial section of a papilloma is made and none of the changes are found, the condition is definitely benign. If primary cytoplasia is present, it is benign but search should then be made for further changes

"If secondary cytoplasia is found or fusion, the condition is precancerous

"If tertiary cytoplasia is present it is definitely cancer."

It is but natural that in such a group as we have here, the subject of treatment should attract attention

I would lay stress, however, on what I believe to be of greatest importance after a diagnosis of bladder tumor has been established definitely. No tumor should be operated upon or treated in any manner save in the most modern equipped of hospitals where an up-to-date urological equipment is maintained

The oldest method of intervention in growths of this nature was surgical, of necessity, either by simple cystotomy and drainage, by partial or complete ablation of tumor, or by partial or complete cystectomy. One can now make the statement safely that these methods are now seldom practiced alone—and the percentage of recoveries without recurrence has always been very small

Actual intervention such as the above is now combined with some one of the methods to be described

With the introduction of the X-ray and more especially in the last two years by the use of the Coolidge tube thus allowing of deeper penetration, some cases may be handled advantageously especially by trying previous to operation—or in combination with radium by cross firing as suggested by Thomas (No 10)

It must be remembered, however, that before, during, and after this period of such treatment—and in fact whenever the X-ray—or radium is so used the bladder must be washed frequently to remove bacteria—as the action of such rays less-

sens phagocytic action and opens the portals for a sharp infection. This clinical edict was sounded by Morson (No 11) of London

Pfahler (No 12) uses intensive employment of X-ray with the Coolidge tube

Bransford Lewis (No 13) prepares for fulguration, by previous use of radium and X-ray, applying the radium in a hollow capsule welded to a wire and covered with a black rubber cap, applying it per urethram for two hours, one to three treatments and at intervals of two to three weeks with 50 mg as the amount

In 1910 Beer (No 14) called attention to the use of electricity in the form of the Oudin (No 15), and D'Arsonval (No 16) current, through the cystoscope—by means of which many papillomata could be made to disappear with relief of all the distressing symptoms, and submitted a report of cases

Since then many articles have appeared affirming the use of this treatment and noting marked successes. It may be incorporated with a partial snaring off of the tumor as suggested by Buerger (No 17)

It is to be remembered, however, that if a tumor does not react well after several treatments of this nature it is imperative to open the bladder and apply some stronger remedy

Remembering Kelly's premises one should not allow the simple disappearance of a tumor to lull one's mind but should recall the patient for examination frequently if hoping for a permanent cure

Braasch (No 18) strikes a significant note in saying, 'The degree of malignancy is evidently reduced in successive recurrence after fulguration'. And, further, "It would seem that the rapidity with which tumors disappear is in a measure in proportion to the degree of malignancy." \* \* \* "Recurrence usually occurs after fulguration in six months and generally at the site of the primary tumor"

It, therefore, is to be remembered that small papillomata especially of assuredly benign character seem to yield excellently to fulguration through the cystoscope—thus giving the patient the minimum of pain of detention in bed, and with excellent hopes of success

And in questionable papillomata this method may be tried where no other means are at hand but, the cases are to be strictly observed at frequent intervals and our criticism of any previous treatment or lack of observation is to be withheld till we prove up the patient's story

Some operators now skilled in cystoscopic manipulation use a preliminary method of desiccation, or diathermy, a method of local tissue coagulation through direct application of the electric current

Because all are not adept in such usage reports are infrequent but such as have utilized this procedure speak in kindly terms thereof

Personally I am unacquainted with its use other than from the literature

The local application of stronger medicinal caustics through the open bladder wound or through a cystoscope in an air-dilated bladder is to be discarded in the face of our present methods of treatment

Lastly the field of treatment has been opened to greater success in the use of radium, either alone or combined with some one of the previously mentioned methods. Applied through direct contact with an open bladder wound; or directly inserted into the tumor or surrounding tissue, through intraurethral means, or in direct cross fire from anterior abdomen, perineum, or rectum. The use of radium opens a mine of discussion

To be sure its primary cost seems prohibitive to many operators for no treatments should be attempted unless the operator has at his immediate command at least 100 mg, preferably in needle containers of the usual 12½mg size, with outside filter containers of rubber, various metals such as gold, silver, lead, platinum, etc., whereby the needles may be utilized two or more in a packet or in tandem depending upon the area to be treated and the method of attachment or application

One should familiarize himself with the physics of radium before experimenting. For the alpha rays we care little. The beta rays are superficial and escharotic in action. Therefore, the deeper we wish to have radium rays the more screening must we have to prevent superficial eschars. If the tumor has a deep infiltrating base metal and rubber screens must be used freely. But if the growth is only superficial and the radium is in direct contact with the growth then the less of screening and shorter exposure

Cameron (No 19) advises that always in prolonged raying through skin surface the radium should be placed ¼-inch distant from the skin by interposition of a non-metallic substance

Consensus of opinion seems to be that from 200-500 mg screened with several millimeters of lead or silver (which have about the same density and power of absorption) and with a light rubber screen can be used over the abdomen, in rectum bladder or vagina in cross-fire type for exposure of from 8-12 hours safely, depending in a measure on the extent and depth of the growth. For, the greater the growth and the greater radiation given, the greater will be the toxæmia from the breaking down of cells. For broad-base tumors the bladder should be opened and surgery may follow a preliminary cross-fire radiation of some weeks previous, packing the container against the growth, or sewing it lightly to the bladder wall exactly where desired since the substance is said to act in proportion to the inverse squares of the distance

from the tissue. Where so packed, protection must be given to the opposing bladder surface. Where sewed in, an extra backing of lead filter must be used toward the surface of the opposite bladder wall. For this purpose from 50-100 mg in suitable containers left in place for from 2-6 hours seem sufficient, repeating the dose in three or more weeks. In the ordinary papilloma one or two doses suffice

By intra-urethral application radium may be introduced into the bladder and in an empirical way held against a tumor base for periods of 4-8 hours. This method is advanced by Young (No 20)

Barringer (No 21) introduces a capsule heavily screened, into the bladder with a thread attached for withdrawal, and by posture claims to have gained results, in that the capsule supposedly rests on or near the tumor base, using 100-200 mc of radium screened with 0.6 mm of silver and 1.5 mm of rubber and enclosed in a capsule one inch long by 1-8 inch in diameter

I have thus attempted to give a résumé of our present methods of attack on this type of lesion, in the hope of bringing up for discussion the experiences of those present for record in the literature and the bettering or perfecting of a curative technic

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## PREVENTABLE DISEASES OF ADULT LIFE\*

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ONE of the common diseases of adult life is old age, another is middle age. These are not limited to adult life. The old age due to syphilis is sometimes attained in utero and from then on we have instances of so called premature senility. Senility, however, is always premature. Youth, actually is not a function of time but a physical state.

Having thus, I trust, squared myself with the title under which I was invited to discuss this subject I may say that I have a hearty dislike for the term 'disease' because of its association with the dark ages of medicine when disease was looked upon as an entity when tissue changes or functional disturbances were given a name just as you would name an evil spirit. These dark ages are in fact not very distant. Most of us can remember such terms as idiopathic pyelitis, Bright's disease or nephritis is still spoken of as an entity without regard to its etiology, and there are, I fear even now people who treat the kidney in this condition. We are still prone to label a man who is out of health as a 'case' of some kind. To make a diagnosis seems to carry with it the obligation either to force a man into some procrustean diagnostic bed and put a label on him or else dismiss him with that horribly abused endorsement, 'a clean bill of health.'

To prevent middle age, to prevent old age or rather to postpone these periods of physical deterioration, has seemed to many a quixotic or even a fantastic proposition. Why this peculiar attitude of mind that refuses to admit the scientific probability of a radical change in the life cycle of man even to the point of doubling it or trebling it? Inasmuch as communion with the dead is gravely discussed by cultured people the mere doubling of the life span would in comparison seem a commonplace postulate. There has been no denial of the possibility of effecting such changes in the life cycles of lower organisms even fairly complex organisms and I think we must ascribe this skepticism as to greatly changing the human life cycle and this fatalism as to its fixity largely to human egotism. We still subconsciously cherish the belief that we are made in the image of our Maker, and that we are set apart from the rest of the living world not only mentally and spiritually but physically. There is, I think to the average mind something almost repellant and sacrilegious in the suggestion that there could possibly be brought about any material change in the life cycle of man as fixed by tradition and so accurately portrayed by

Shakespeare. Yet here and there, even in the literature of the remote past, we find a glimmer of light and an utterance of some philosopher which is identical with the thesis of this paper. For example, when Gorgias of Leontini, who had completed a hundred and seven years without ever relaxing his diligence or giving up work, was asked why he consented to remain so long alive, he replied, 'I have no fault to find with old age.' Cicero, commenting on this, says "That was an noble answer and worthy of a scholar, for fools impute their own frailties and guilt to old age."

There is a profound and tremendous significance in that utterance. He states in a sentence what I shall attempt to bring out in detail in this paper namely, that old age is always premature, just as death from typhoid fever, apoplexy or pneumonia is always premature, and that the physical changes noted at the advancing decades of life are not due to time since time is not an entity, but an abstraction, a synthesis of space and motion that physical collapse, whether abrupt or spread over a period of eighty years, is not in response to some mandate or inflexible law, but the result of the cumulative effect of incident antagonistic factors in the environment or in the individual. Simple and elementary as this proposition is, it is too seldom accepted or recognized in the attitude of medical men and hygienists toward the problems of health and disease. I ask your indulgence if I dwell for a little time on these underlying philosophic principles which mean so much in motivating this work. The correction of trouble at its source will never be systematic, comprehensive and effective if we accept average conditions as more or less fixed and as proper standards for measuring human excellence. How often we hear the statement that certain pathological conditions are 'normal to the time of life.' Such conditions may be common to the age period in which they predominate, but to call them normal is not only unscientific and inaccurate, reactionary and obstructive, but it actually postulates uncaused action.

Do not misunderstand me. I am not in favor of over-emphasizing the pathologic changes found in middle life and later. So far as the average individual's outlook and future are concerned we can reassure him as an individual that he is quite as well off as his neighbor but as men interested in improving health ideals and in assisting the individual to improve his physical state we are justified in telling him that we are not satisfied to leave him on this dead level of physical mediocrity but that we wish to assist him to a higher level and that we believe it possible for humanity in general to climb to a higher level.

What scientific evidence is there that the life cycle of man may be changed, that the physical handicaps which accumulate as life advances,

may be materially mitigated or eliminated? When we search for the original causes of disease, old age and death we find that they may readily be grouped under certain categories and that these categories are logically complete, although all the specific influences under each category cannot now be named. As each type of destructive influence is disclosed, however, it will surely find a place under the categories herein given, namely

Heredity,  
Infection,  
Poisons,  
Food Deficiency,  
Food Excess,  
Hormone Deficiency,  
Hormone Excess,  
Physical Trauma or Strain,  
Psychic Trauma or Strain,  
Physical Apathy or Disuse,  
Psychic Apathy or Disuse

You will note that time does not appear in these categories and it would, of course, be absurd to place it there. It has nothing whatever to do with the changes that come about in the course of time. Neither does wear and tear appear there. While the human organism has very properly been compared in some respects to a machine, it differs radically from an inanimate machine in that in a state of complete health, with adequate nourishment, there is provision in the body for the maintenance of parts. Such wear and tear as there may be is included under psychic and physical trauma. The body does not simply wear out, it is infected out, poisoned out, starved out, or deficienced out. So far as the individual is concerned, heredity may profoundly influence the quality of his tissues, his organs and his underlying resistance.

Admitting that there is some factor in the germ plasma that influences the life cycle, it can only be a physico-chemical influence conceivably subject to modification or control, as has been demonstrated in other organisms. We have the classic instance of Carrel's<sup>1</sup> experiment on the cells of the chicken embryo. In that experiment simple, undifferentiated tissue cells have for many years been kept alive and growing by protecting them from the influences named under the categories I have mentioned. That is, these cells were protected from infection, from poison and from trauma, they were properly nourished, and they apparently have an indefinite lease of life. Recent experiments along this line have been carried out by Loeb<sup>2</sup> and others on the fruit fly. In the case of the fruit fly, however, we have a fairly complex organism whose life cycle has been increased by 900 per cent by lowering of the temperature 20 degrees centigrade and slowing down the chemical reactions in the body. The

fruit fly differs from the human organism in that it takes on the temperature of its environment and is susceptible to such control. This organism was likewise protected from adverse factors in the environment, especially from infection by placing the eggs in a solution of bichloride of mercury, and the final demise of the organism has been described as physiological death or the end of a chemical reaction slowed down and retarded by a lowered temperature. Death in the human organism is a condition of acidosis, so that in a certain sense the life of man may be described as a chemical reaction ending in acidosis and death. It has been figured out that if the same method that was applied in the case of the fruit fly could be applied to man, his life could be prolonged to 1,900 years. This sounds fantastic, but it is not a prediction, it is simply a principle, a principle that opens the door to science and human endeavor. In the case of the fruit fly, death was actually pathological, as it always is in man. The chemical state of the tissues, the influence of toxic substances formed and accumulated within its body finally killed this organism that had been aseptic from birth, as shown by control experiments.

You are all familiar with the fact that the life cycle of the tadpole can be profoundly altered by feeding thyroid extract. Certain organisms, such as the ephemera, live but a day because of faulty structure. Earth worms have been kept for ten years, the fresh water mussel may live 40 years, a turtle 200 years, and the ancient dinosaur was thought to have a life cycle of 800 years.

The life of the unfertilized egg of the star fish and of the sea urchin, ordinarily brief, can be prolonged by reducing the supply of oxygen.

The California redwood tree is practically immortal, whilst other plants, the annuals, die after fructification, and yet in the case of ænotheras, DeVries showed that by cutting the stem sufficiently early, the plants are induced to develop new buds at the base and these buds survive winter and resume growth the following spring.

We have always to admit the possibility of dissipation of energy and geologic change ultimately abolishing all forms of life. I merely cite these instances to show the philosophic validity of the postulate that the human life might be indefinitely extended.

That the human life cycle is subject to wide variation, according to conditions determined either by heredity or environment, is easily demonstrable. An infection leading to valvular heart defect, if it does not kill, places the individual in a class with from 50 to 150 per cent extra mortality, McKenzie<sup>3</sup> to the contrary notwithstanding. The present tendency to belittle the significance of valvular heart de-

fects, notwithstanding the comprehensive and conclusive mortality statistics in such cases, is another evidence of the clinical tendency to under-emphasize and disregard that which does not at the moment cause pain or physical discomfort. Great as is the debt that the profession owes to McKenzie and his co-workers for extending our knowledge of heart pathology, we must deplore his drastic criticism of the practice of life insurance companies in declining or rating up cases with valvular heart defects, a practice fully justified by the tabulated experience on such risks. This tendency to be little physical impairments which are not immediately disabling has been carried to a *reductio absurdum*. One can find in the literature respectable authorities who will assure us that almost any physical impairment that can be named, whether it be mouth infection, constipation, mitral insufficiency, defective tonsils, albuminous urine, arterial thickening, high blood pressure, or even a history of syphilis are without any material or important influence on physical efficiency or longevity. Turning from such statements based upon dogmatic opinions or loose general observations to actual experience, what do we find? Dr Oscar H. Rogers<sup>4</sup> in a recent paper giving the experience of the New York Life Insurance Company among its sub standard risks rated up on account of heart defect, reports as follows:

Mitral regurgitation without hypertrophy showed an excess mortality above the normal of 65 per cent.

Mitral regurgitation with hypertrophy showed an excess mortality of 105 per cent.

Mitral regurgitation with history of rheumatism gave a mortality figure of more than 200 per cent above the normal.

Yet we see such cases referred to in the literature as unfairly treated by insurance companies. McKenzie in particular going to extreme lengths in his criticism of insurance rulings, forgetting that science cares nothing for authority as against evidence and palpably unaware that the evidence that valvular heart defects in the mass materially shorten life is beyond dispute. I am far from claiming however, that the present mortality figures in these cases are fixed and unalterable. Much of McKenzie's criticism of the attitude of mind of many practitioners is well grounded. We are not to regard these people as having a 'disease' but as having defects which if properly safeguarded by well ordered hygiene may not preclude a fairly long life span. This is quite a different matter from dismissing them with a clap on the back, a hearty assurance that the trouble is negligible and that they can do about as they please. It is noteworthy that in the instructions issued to the draft boards systolic murmurs not associated with secondary changes

and responding normally to exercise, were pronounced as without significance.

Inasmuch as murmurs in the mitral area unaccompanied by secondary signs showed an extra mortality in life insurance experience of 65 per cent, with the deaths from heart disease, Bright's disease and pneumonia in this group at double the normal, it is not safe from the standpoint of health and longevity to dismiss this symptom as negligible, even though such risks be considered acceptable for the short test of war.

At ages 30 to 40 the mortality was even greater. Even functional murmurs at ages over 40 showed a substantial extra mortality. Remember that these are statistics not on clinical cases or individuals applying for medical treatment, but on homogeneous groups apparently free from defects other than the heart abnormality and in such good physical condition that they had the confidence to apply for standard life insurance and the company was willing to accept them on rated up policies, an action that would not be taken in the case of an individual showing any evidence of general ill-health.

Other conditions often loosely regarded as not materially shortening life have been shown by medico actuarial studies of 2,000,000 insured lives in this country to have a very profound influence. Syphilis, with a history of thorough treatment and apparently cured ten years prior to application, shows a mortality of more than double the normal, gout, within five years shows 90 per cent extra mortality, rapid pulse 90 to 100, no other impurment or assignable cause, 72 per cent above the normal, rapid pulse 100 or more, 105 per cent above the normal. At age of 45, 50 pounds overweight, shows 50 per cent extra mortality, 70 pounds overweight, 75 per cent extra mortality. Average weights at age of 45 show a mortality 5 per cent above the optimum rate, which is found at 20 pounds under the average weight. So much for your average man!

Blood pressure looms large in the lay as well as the professional mind at present, but there is not always a good sense of proportion observed in discussing it. There is a common practice of adding 100 mm to the age and calling that "normal." This is approximately correct for the younger ages, but is far from correct for older ages. The average blood pressure at various ages has been studied in independent life insurance investigations covering more than 50,000 lives, and our own findings closely agree with these results. The systolic pressure at ages 15 to 20 is 118, at 60, it is 135. J. W. Fisher<sup>5</sup> has reported an excess mortality of 9 per cent among insured lives with an average pressure of 141. 63 per cent excess mortality among those with a pressure of 152 and 236 per cent excess mortality among those with a pressure of 171.

Blood pressure is of course a symptom in many possible conditions, but we are justified in regarding as sub-standard lives those whose blood pressure is persistently more than 15 mm above the average for the ages as above given. Janeway's caution on this matter has good support in comprehensive life insurance experience.

In passing it may be said that in our studies it has been disclosed that the predominant physical characteristic in high blood pressure is overweight—50 per cent of high blood pressure cases showing 20 per cent or more overweight. The predominant characteristic in low blood pressure is underweight—70 per cent of such cases showing marked underweight. High blood pressure subjects show only 24 per cent of underweights, while low blood pressure shows only 17 per cent of overweights.

In this relation, the studies of Francis G. Benedict\* on a group of individuals maintained on a low level of metabolism and baled of considerable reserve nitrogen, should be borne in mind. I took the pulse of a member of this group and found it below 30. Such low pulse rates and systolic pressure below 90 were characteristic of the group, and yet they showed normal physical endurance and were in active work, showing that low blood pressure may be physiological under certain conditions. We frequently meet it, however, in the tuberculous, ill-nourished, those with focal infection and the "no man's land" of neurasthenia.

Many of these conditions mentioned are obviously preventable. Many can be favorably modified and their life-shortening influence neutralized to some extent. If we permit people to drift in the belief that their disabilities are negligible, this is as unwise as to exaggerate their symptoms or unduly limit their activities. In an experience extending over seven years and covering a group of several thousand policy holders that have been periodically examined for the purpose of lengthening their lives were included all these types of sub-standard risks, with an estimated expected mortality of 200 per cent, or double the normal. The actual mortality in this group was 10 points below the normal, showing an apparent reduction in the death rate of more than 50 per cent. These people were all informed of their defects, given proper conservative warning as to their hygienic needs and informed of the proper medical treatment to seek.

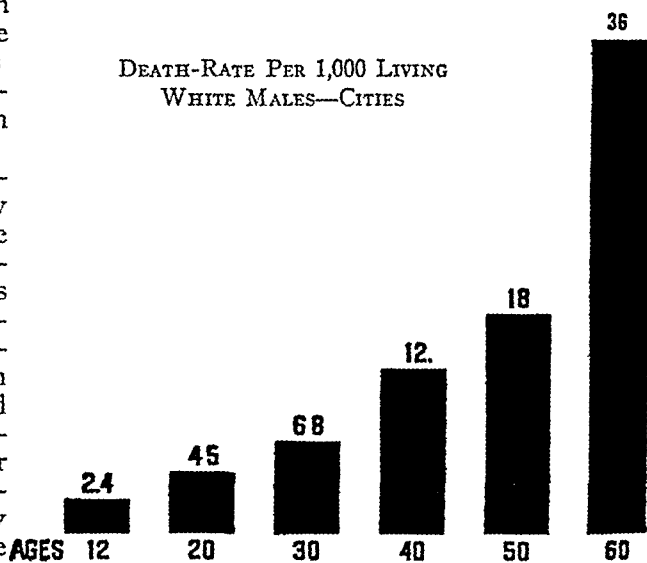
There will shortly become available a study of more than 50,000 lives that have been critically examined and instructed along these lines. These were policyholders who availed themselves of the privilege of an examination by the Life Extension Institute.\*

\* Since this was written the study by the Metropolitan Life Insurance Company of about 6,000 cases examined in 1914-15 by the Life Extension Institute and instructed, has become available. It showed a reduction of 28% in the death rate in the whole group and a reduction of 67% from the expected death rate among those found impaired.

It is pretty difficult to get a practising physician to become very much excited over a so-called robust man, who is 40 or 50 pounds over weight, yet the mortality experience shows that this condition carries as heavy a mortality as a mitral lesion, at least in mature life.

These instances of life shortening are due to causes which can logically be placed under the categories I have enumerated.

We are now concerned with the problem as to how rapidly vitality wanes with advancing years and why it wanes. I have endeavored to show some of the reasons why it wanes, and I shall now seek to show the rate at which this physical failure progresses and the impairments that accompany it. The following chart exhibiting the movement of mortality from the age period where it is lowest (12) to that where it is highest, shows us at a glance the curve of physical failure. It punctures the bubble of self-sufficiency. It shows us that the testimony of the draft examinations in this country and in England, as well as those made in such services as it has been my privilege to direct, is consistent and a true reflection of underlying conditions.



U S LIFE TABLES, CENSUS OF 1910

It is interesting to note that the increasing physical disability with advancing years revealed by the Life Extension Institute examinations and the draft examinations is paralleled by the advancing death-rate even in the years supposed to be characterized by youthful vigor.

The testimony of the draft, briefly stated, is to the effect that about 47 per cent of the men examined were found with defects worthy of record. Approximately 33 per cent were declined for active military service. A very considerable number among those accepted had impairments such as syphilis, gonorrhea and a long range of troubles which were not even sought for under the conditions of mobilization. It has often been stated that many of the

causes of rejection were structural or of a nature that did not impair the individual's ability to earn a livelihood. Inasmuch as many were accepted with serious defects, such as syphilis which practically adds a double mortality liability, even though it is not immediately disabling, we must deprecate this tendency to regard anything that does not interfere with the immediate ability to earn a livelihood as a negligible defect in its civil influence. The Surgeon General of the Army has wisely emphasized the tremendous import of these draft findings in his argument for military training. So far from belittling the significance of the draft findings it is more important to point out that they are really a superficial and inadequate presentation of the underlying conditions. Owing to our unpreparedness it was physically impossible to organize such work on a uniform plane of efficiency. Also, it must be borne in mind that the standards were those for war, that men who were far from being in ideal condition were accepted because they were adjudged capable of seeing the war through, and it is well known to those who trained our soldiers that they required a great deal of physical training to be brought up to the mark. Indeed, there were few who were fit to go right into the fight. This means that there was a wide margin for physical improvement.

Bear in mind that in the draft only the prominent defect was recorded. This means that millions of defects, perhaps of more importance than the prominent defect, were submerged in the records. That is, a man might be declined because of extremely faulty vision and perhaps have some much more serious organic defect which was not sought for. This fault will always occur in any tables that deal with individuals and not with impairments. A man with tuberculosis may have an apical tooth infection that will bar his recovery from tuberculosis until eradicated. I have seen cases of syphilis that failed to improve under specific treatment until mouth infection was cleared. Robert Louis Stevenson recovered from advanced tuberculosis only to die of apoplexy. Arterial degeneration in his case was more serious than tuberculosis because it could not be cured. A man with a valvular heart defect may have syphilis, or gastric ulcer, or a number of things which in the aggregate are quite as important as the heart defect. The so-called "prominent defect" may be only the register of a more serious etiological factor that does not appear in the classification.

To show how inadequately the draft reports reflect the actual condition, compare these percentages reported by Love and Davenport with those found among average groups within the age periods of the draft reported by the Institute.

	Per cent	Per cent.
Draft—Valvular heart defect	55	Institute 15
Defective Vision	3	33
Tonsils	2	29
Teeth	125	56

Major Comrie<sup>8</sup> reported a rejection rate for active service in the British boards of 22 per cent at age 18, 48 per cent at age 23, 69 per cent at age 40 and four-fifths of those examined at ages 18-41 showing reportable defects as against 47 per cent in the United States draft statistics. Only 36 per cent of men of military age in Great Britain qualified for active service.<sup>10</sup> I am presenting some tables covering the analysis of 10,000 examinations of industrial groups, representative average workers, by the Life Extension Institute, and other tables showing an analysis of 5,000 examinations at the head office of the Institute of members voluntarily applying for a physical survey.

#### ANALYSIS OF TYPICAL INDUSTRIAL, COMMERCIAL AND INSURANCE GROUPS—LIFE EXTENSION INSTITUTE (Figures Derived from More than 10,000 Cases)

	Industrial			Commercial			Life Ins	
	Men	Women	Av Age	Men	Women	Av Age	Men	Women
	34	25		26	26		37	
	%	%		%	%		%	%
Class 1	0	0		0	0		0	0
Class 2	10	23		10	12		6	6
Class 3	41	54		52	58		63	63
Class 4	35	19		27	21		21	21
Class 5	9	4		9	9		7	7
Class 6	5	0		2	0		3	3

#### ANALYSIS OF 5,000 INDIVIDUALS TAKING PERIODIC PHYSICAL EXAMINATION AT HEAD OFFICE LIFE EXTENSION INSTITUTE

	% All Ages	% Under 25 yrs (8%)	% 26-45 yrs (54%)	% 46-65 yrs (34%)	% 66+ yrs (4%)
Class 1	0	0	0	0	0
Class 2	1	—	—	—	—
Class 3	16	27	18	11	—
Class 4	25	32	27	22	—
Class 5	51	37	50	56	61
Class 6	8	4	5	11	—

- Class 1—No physical defects
- Class 2—Minor defects requiring observation or at attention
- Class 3—Moderate defects requiring hygienic correction or minor medical dental or surgical attention
- Class 4—Moderate defects requiring medical supervision as well as hygienic correction
- Class 5—Advanced physical impairment requiring systematic medical or surgical attention
- Class 6—Serious physical defects requiring immediate surgical or medical attention

In the industrial group we have a fairly accurate picture of the actual condition of the working adult population. In the membership group we have a picture of that intermediate class showing a much greater percentage of pathology, a class hovering between a condition of average health and that of frank illness.



when medical treatment or hospital treatment is sought. This to me is an extremely interesting group in that it shows the class of people that should be in touch with medical science but, for the most part, were not until their condition was revealed by their examinations and they were influenced to go to their physicians or secure from some source the proper medical attention. In the group representative of the average adult citizen, we find no individuals absolutely free from impairment. We do find that about 10 per cent of this group have impairments limited to the minor type. In this group we include such impairments as

Slight thickening of the arteries,  
Slight varicose veins,  
Slight varicocele,  
Slight functional heart defects,  
Slight urinary changes—crystals, bile, indican, etc.,  
Slight uncorrected defects of the eye,  
Slight nasal affections,  
Slight enlargement of tonsils,  
Flat foot,  
Headaches,  
Minor skin affections,  
Faulty posture,  
Spinal curvature, not tuberculosis,  
Slight overweight,  
Slight underweight

It is interesting to note that an extremely small percentage of the membership group is found in this class. We also find that with advancing age the percentage of the more impaired classes increases.

A glance at these figures shows what is going on beneath the skin and clothing of civilized man. If we found such conditions prevailing among reindeer, buffalo, rabbits, elephants, tigers or other animals in a state of nature, we would consider that such organisms were in a very decadent condition. Man has used his brain to offset his physical deficiencies and thus has maintained himself, although races like the *cro-magnon*, after flourishing for thousands of years and reaching high development, have ultimately passed out. Have we any right to regard this nation as chosen from all history to prevail? If we carry on our civilization it will be because we have the intelligence to attain adjustment and not just because we are Americans. Where in a state of nature will you find a flourishing and dominant race of animals with physical impairments such as are reflected in these charts?

Taking into consideration scientific limitations there is undoubtedly a greater degree of physical impairment than is here reported. As the methods of physical examination improve, as instruments of precision become available, as

laboratory resources and research aids such as the X-rays, become amplified the precision in this work increases.

In a series of 4,000 consecutive X-rays of the jaws of members of the Institute, 62 per cent showed root infection.

In a series of 1,500 X-rays of the chest in members of the Institute seeking the periodic physical examination, the following conditions were found

		Per cent
Normal cases	868	56.3
Heart enlarged	266	17.2
Heart displaced	20	1.3
Aortic aneurysm	3	.2
Aortic dilatation	19	1.2
Aortic prominence	49	3.2
Healed tuberculosis	239	15.5
Active tuberculosis	67	4.3
Diaphragmatic adhesions	10	.6
Fluid in chest	1	.06
Mediastinal tumor	1	.06
Cervical rib	6	.38
Deviated spine	31	2.0
Pleurisy	32	2.0
Extensive bronchial thickening	8	.5

The plea in this paper is not for mere length of days, strongly as I have stressed the possibility of extending the human life cycle. The rational plea is for extending the health cycle, the health span, the period during which vitality is at a high peak, when the capacity for living is greatest, when our reserves are ample and our bodies free and untrammelled by the limitations and handicaps which are well defined in the average civilized man even before middle life.

In the face of these experiences no one can question the tremendous importance of periodic physical overhauling, not only of school children but of adults at any age. In what way can this be brought about?

First, this phase of preventive, or rather constructive, medicine, which I have emphasized, should be more thoroughly taught in our medical schools. Every graduate in medicine should be equipped not only to make a fundamental physical survey, regardless of his interest in any specialty, but he should be saturated with these fundamental principles which will stimulate him to more enthusiastic co-operation with the demand on the part of the general public for physical inspection and counsel on how to live. Physicians of this type will be much needed, are now much needed, especially in the great industries where large masses of men are brought together under circumstances which make it almost an economic necessity to carry out such measures.<sup>10</sup> The specialist is needed in his field, but there are too many people in this country for specialists to reach them all. We need physicians who can examine the great mass of the people and

view each one examined as a man and not as a part of a man, we need physicians sufficiently trained in the technique of examining each region of the body to be able to decide when further special examination or special treatment may be needed. This is the principle followed in our work, and it has enabled us to cover about 150,000 complete examinations.

Second, not only school children, but adults, require to be educated on the value of periodic physical overhauling and hygienic measures as well as prompt medical, surgical or dental treatment for the correction of defects. It is important that, regardless of any special machinery provided for this purpose, as through life insurance companies, the great industries, or the like, every citizen shall seek from the best available source a protective service of this kind and not postpone his visit to a medical man until pain or obvious physical failure compels such action.

Third, the life insurance companies can afford to extend to their policyholders this privilege of periodic physical examinations without charge, as the resultant lower death rate will undoubtedly defray the cost, and the medical profession can afford to co-operate in making these examinations on a moderate basis of cost inasmuch as the results will be wholly in the interest of scientific medicine. Such a system if properly applied, would bring millions of people under medical supervision and instruction who are now drifting neglected or dallying with unsci-

entific and quack methods, many of which are now masquerading under forms that attract even cultured and sincere health seekers. Through companies employing the Life Extension Institute alone more than 600,000 people are entitled to this privilege, and a few of the leading companies are extending to a limited number of their policyholders this privilege of physical or urinary examinations. More than ten million people should be brought under this system.

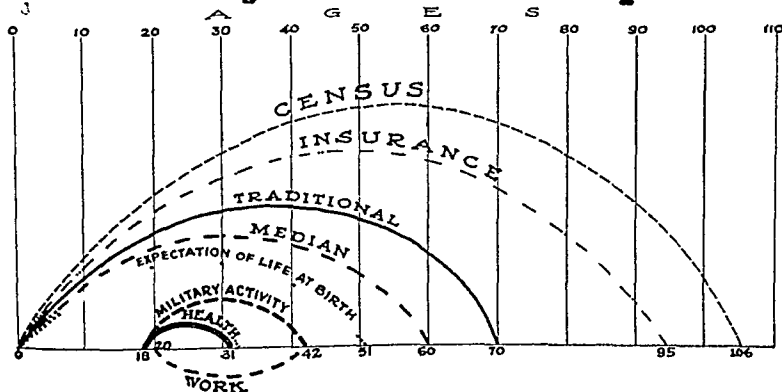
Fourth, in the great industries industrial medicine is rapidly bringing vast numbers of workers under medical supervision. While the regular periodic physical examination is practiced in a limited number of places, the principle is recognized in a number of important plants. A periodic examination is required through the Institute of important groups and plans are developing for co-operative services of this type for the rank and file of workmen.

Fifth, a National Department of Health to coordinate all activities for physical education of school children and related measures.

Through the operation of the agencies above named much is to be hoped, not only for the physical betterment but the setting up of better health ideals. Indeed the recognition of these higher health ideals transcends all else, as otherwise there will be lacking the motivation for developing and making fully effective any of these measures.

I would also appeal for more extensive and

## Health Span ~ Life Span ~



(18-31) **HEALTH SPAN** or Period of Physical Freedom and Full Vigor

(20-42) **WORK SPAN** or Period of Maximum Productivity in Industry

intensive post-mortem study of tissue changes at the earlier as well as later periods of life. The percentage of cases shown in these tables with signs of organic change or organic insufficiency, arterial thickening, traces of albumin, blood pressure changes, etc., even in the earlier age periods, is significant and do violence to many preconceived notions, yet Simnitzky found arterial changes in 27 per cent of autopsies among individuals under twenty-five. Saltikow has averred that arterial degeneration in its germination is a disease of youth, and there is much evidence in support of that view. Surely arterial degeneration does not arise over night, and the frequent finding of that change in middle life as a clinical accident entirely apart from the numerous deaths in middle life from such causes sustain the probability of widespread earlier arterial changes which are overlooked because they are not sought for until symptoms arise. Allbutt is particularly sound on this matter,<sup>11</sup> but he stumbles badly when he talks about the "wings of time" having anything to do with arterial changes.<sup>12</sup> Fancy the wings of time flapping about our arteries! It is either a poison or an organism without wings that does the damage. It is important that we cease personifying time, especially since Einstein.

There is another way to make available machinery for protecting the young manhood of this nation from the physical deterioration shown in these exhibits. There is a way to cut down the budget for hospitals, dispensaries and clinics and to put more medical men at work preventing illness and improving national vitality than in treating the terminal stages of disease. Universal physical training and education in our schools and in early adult life, properly conducted and safeguarded as to organization for hygienic and corrective work, will, in my judgment, go further in solving these problems than any other measure that could be enacted. We would accomplish in a short time what it might take generations to accomplish by other means. I know of no more comprehensive means of preventing the so-called disease of adult life than to bring our young men at the very beginning of adult life under this type of instruction and guidance. What a limited number of young men are now securing in enlightened and progressive universities where such overhauling and instruction is provided would be supplied to all young men and women of the nation.

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#### THE RELATION OF THE STATE HEALTH DEPARTMENT TO THE GENERAL PRACTITIONER

By MATTHIAS NICOLL, Jr, M.D.,  
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**I**N discussing the history, growth and present status of the medical sciences it is desirable to take into consideration three component services which go to make up the profession of medicine namely, medical education, medical practice, including diagnosis and treatment, and preventive medicine. The last is usually regarded as the chief function of health departments and by not a few the sole function and matter of interest with which health officials may properly

\* Read at the Annual Meeting of the Medical Society of the State of New York, at Brooklyn, May 3, 1921

concern themselves. Those who hold this view frequently resent what they regard as encroachment of health officials on the field of work and prerogatives of medical educators and practitioners.

A little thought given to this attitude of mind will I believe, show its untenability as well as the unfortunate consequences which must inevitably follow a too narrow allocation of exclusive functions to each of the component parts of medical science. For these parts are not independent but so closely linked that the retarding or weakening of one of them must inevitably lead to the crippling of the others. Thus methods of medical education founded on the latest scientific knowledge and adapted to the needs of the people are no more a matter of concern to the present and future practitioners of medicine than to those who are especially interested in the administration of the public health, for in the final analysis the practitioner of medicine must be the agent to carry out the provisions of law which are enacted for the protection of life and health, and this will always be so, or until such time—which I cannot foresee but which some appear to dread—when the practice of medicine shall have become a function of the State. For this reason the health administrator whose jurisdiction extends over a broad territory and includes all types of population—rural, urban and suburban—if he is to perform his duty intelligently and with fruitful results must be vitally interested in the economic social and educational measures which will result in furnishing to all communities well equipped, experienced and successful practitioners who shall have ready access to the modern means of diagnosis and treatment now so unevenly distributed throughout the state and country. Again, the medical educator must be constantly made aware of the results of the application of his methods of teaching by observation of the work of the finished products, the practitioner and medical officials in office, field, hospital and laboratory. In no other way can defects in medical education be remedied and made to conform to constantly changing conditions.

Constructive criticism of any branch of medicine from whatever source it emanates if offered in good faith should not be resented but heartily welcomed as a most important factor in eliminating defects and bringing about improvement. The State Department of Health has sought and received without seeking a fair amount of advice and some criticism which has always been given careful consideration and frequently resulted in confirmative action by changes in method. In turn the Department has not hesitated to call attention to facts regarding medical practice and medical education which have come within the knowledge of its adminis-

trative head and members of the staff, such matters being of no less concern to the Department than to the practitioner of medicine and the medical educator, since they involve the health, happiness and life of the people of the State.

At the risk of burdening you with facts which have so frequently during the past two years been brought by the Commissioner of Health to the attention of the medical profession of the State, may I be permitted to review briefly certain outstanding features relating to medical practice, especially affecting the less populous districts of the State, which are readily susceptible of confirmation and in so far as I know have not been convincingly refuted.

First, physicians are abandoning the rural districts, in most instances going to the larger cities of the State. Thus from 1911 to 1919 the rural communities lost by removals and deaths 403 physicians (13.5 per cent), while the population in the meantime had increased approximately 7 per cent. Twenty rural counties which in 1911 had 1,010 practicing physicians, in 1919 had but 889, and those that remained had practiced on an average for 25 years, and only 26 had been in practice for three years or less. In other words, death and dissatisfaction with rural practice had left that field to be covered by the middle-aged and old practitioners with few or no recruits ready to take their places, when in the course of time they will have gone.

It is frequently stated that with the general use of automobiles and the great improvement in the roads of many of the rural districts fewer physicians are needed to cover a given territory. This I believe to be a fact but that many large areas are not covered at all except by sending for physicians from a long distance and at great expense in cases of emergency is proven by the fact that for the past two and a half years 83 communities have appealed to the State Department of Health to supply them with physicians. By advertising in medical journals, medical schools and elsewhere and by personal solicitation of possible candidates the Department has been able to furnish 36 physicians. 6 communities have made arrangements with adjoining towns for medical service, 2 physicians have returned to their former practices. 5 communities have requested the Department to withdraw their applications stating that they have grown tired of answering letters of applicants who after ascertaining the local conditions have been unwilling to take the practice. In two instances under a law enacted in 1920 at the instance of the Department two adjoining townships have appropriated a salary for a resident physician, with the agreement that he shall care for the indigent sick in addition to attending to his private practice. Thirty-four communities are, at last account still without physicians. While it is not probable that this number of

requests for physicians represents by any means the actual number of communities which are in need of them, the figures as they stand are sufficiently impressive to command attention and are indicative of a problem which imperatively calls for solution.

Insofar as it has been possible to ascertain the facts the great majority of the localities listed contain a sufficient number of inhabitants who are able to pay for medical service to insure a living to the physician. In many of them a physician may count upon better than an average professional income, as it is generally estimated in the case of city practitioners. The history of former incumbents, dead or moved away, often denotes financial prosperity and the acquisition of a not inconsiderable personal property. But even if it should be granted that these localities do not offer sufficient advantages to induce qualified physicians to settle in them, what about the inhabitants, who represent in the aggregate thousands of good American citizens? In these places babies are born, men, women and children suffer and die. Shall they be condemned to reliance upon home remedies self-administered or given by an ignorant neighbor, patent medicines, or on advertising quacks, or must they be abandoned or advised to move and join, if they are able to the ever-increasing army migrating to and congesting our cities?

What are the causes for the failure of physicians to undertake rural practice? The influential factors are, I believe, fairly clear.

1 Physicians, like other persons in professions, business and the ranks of labor, are under the spell of a world-wide psychologic phase of civilization to which was given a tremendous impetus by the World War, which caused a general overturning of old standards and habits of life created the desire for constant excitement and a spirit of restlessness which has by no means disappeared at this time. Thus, hundreds of physicians who had been in service and experienced a life previously unknown to them dreaded to return to the private practice of medicine, and this was especially true of those who had gone out from the comparative quiet routine of country practice to the highly contrasted life of military medicine of which the shifting of the burden of personal responsibility for petty events, for which they formerly had to hold themselves answerable at all times, was by no means the least attraction. Such men sought city life in which they hoped to find the constant stimulus of which they had become enamoured.

2 With the great advance in medical science during the last decade and the technical knowledge and equipment frequently necessary in order to arrive at a correct diagnosis and administer proper treatment, together with the large ex-

penditure of time and money required to obtain a medical degree, the modern graduate in medicine may be pardoned for unwillingness to settle in localities in which few or no facilities are available for carrying on his profession according to modern standards and in which only with great difficulty he may share responsibility by consultation with fellow practitioners.

During a number of discussions on the quality of rural practice at which I have been present it is usually the custom for some city physician to pose as the defender of the country practitioner against what he assumes to regard as an attack upon the latter's ability by the Department of Health and other agencies. This, in my opinion, is simply a method of evading the issue, and quite unnecessary. A good country physician, and there are many of them, needs no defense by anyone. He is a victim of modern progress and its accompanying requirements. He has learned by necessity to use his five senses to the utmost and acquired a habit of self-reliance which many of our spoon-fed recent graduates in medicine may well envy. But self-reliance, while a most desirable attribute, is all too frequently developed at the expense of the patient, and not being a superman the isolated country physician can not hope to have intimate knowledge of all the special branches of medicine or to perform his work without the essential facilities.

3 There can be no question that the life of a rural practitioner is a hard one. His hours are long and his services at the disposal of his patient at all times. Many calls require long travel, often over bad roads in the cold of winter and the heat of summer, in fair weather and in foul. The fees are small, and in many cases collections slow, so that only by strict attention to his professional duties by day and night may adequate financial returns be forthcoming. The physician of the present generation is to my mind softer, less prone to undergo physical hardships than those of a bygone day, and observing the comparative ease with which the city physician is able to regulate his hours of work, eating, sleeping and recreation, it is not to be wondered that the country physician often regrets his chosen field and not infrequently abandons it, or that recent graduates shun it in favor of a city career.

4 The increase of specialization is a natural consequence of greater knowledge regarding the pathologic conditions which affect the various parts of the body, and the development of new methods of treatment applicable to each. No one man in the years that are given to him for active study can hope to acquire an exact knowledge of all of the specialties, but every general practitioner should have a working familiarity with them. To the undergr-

and young physician specialization, with its regular hours, larger fees and possibility of establishing a wide reputation, holds out great attractions, with the consequence that those who desire to enter the field of general medicine are growing fewer in number year by year, while specialization, often along the narrowest lines and in many instances with totally inadequate teaching and experience, flourishes apace.

5 It is not only the physician himself who must decide on choosing a country practice. His wife and older children have to be taken into consideration, and it is a fact which has lately been brought to my attention that their wishes not infrequently determine a physician's decision to take up city practice in preference to that of the country.

So much for the principal causes for the growing lack of physicians in rural districts as they appear to me. Now as to possible remedies.

1 The State Department of Health has introduced in the Legislature for the past two years a measure designed as a possible solution of the above problem. This bill, known as the Health Center Bill, involving State aid to communities, has twice failed of passage and has been almost universally opposed by the medical profession of the State. I shall not discuss at this time the provisions of the bill, nor seek to defend it, if that be necessary, only calling attention to the fact that at practically every medical meeting at which this plan was discussed those physicians who evinced any real interest in the problem of rural practice, and a desire to find some method of solution were in practical agreement that many more open hospitals scattered throughout the State where the seriously sick at least could be taken care of, more diagnostic laboratories, and a better nursing service should in some way be provided. Upon this as the first remedy for meeting rural medical needs I think we may all agree.

2 The smaller medical schools must be fostered encouraged and their financial needs provided for. A recent study of the locations to which graduates in medicine of the Buffalo, Syracuse and Albany Medical Schools have gone reveals the fact that these schools are supplying physicians to a territory largely comprised within a radius of some hundred miles, more or less. Thus, of 1,700 graduates of the Albany Medical School only 174 have settled in and about New York City the great majority having located within a dozen counties about the college and more than one third of them have taken up practice in communities of 10,000 population or less. Conversely New York City is supplying but a very small number of physicians to the rural up state districts at the present time.

3 It seems to me that the art of medicine, as it may be called, its importance attraction and

possibilities is too little stressed, if not neglected, by our modern medical schools, and the importance of the power of clinical observation too lightly dwelt upon, with the consequence that the medical graduate of to-day becomes a sort of over filled receptacle for undigested knowledge of any and all branches of medical science, too prone to rely on laboratory and other diagnostic aids and the help of other men so that his powers of observation in time become atrophied and he becomes little more than a transmitter of poorly ascertained facts regarding his patients to those who he hopes will solve the problem for him. Simple remedies that have stood the test of time, measures taken for the comfort of the patient, helpful suggestions to the patient and the family, sustaining encouragement, all have their place in the physician's equipment and should not be looked upon with contempt. The quack and charlatan know the value of these things and are daily making use of that knowledge to the detriment of qualified physicians. The passion for making a diagnosis before or after death seems to have relegated the art of medicine to the background, but it is the latter for which the patient is ready and willing to pay, and that fact should never be forgotten by the practicing physician who hopes to retain the confidence of his patients.

4 There has been a good deal of progress in providing nursing service throughout the State. Public health nurses have increased from some 150 in 1913 to over 1,100 at the present time. Many more are needed. Diagnostic laboratories, especially those doing routine work, have been fostered by the State Department of Health and have greatly increased in number and the quality of their work standardized and improved. Many more are needed, and the field of work which they perform should be very much broadened. While road building has gone on very rapidly throughout the State much more work needs to be done in order that all communities may have roads which are passable at every season of the year.

5 And, finally, in the natural course of events the uneven distribution of physicians within the State will, it is hoped, tend to correct itself for it is quite doubtful whether the average physician will long be able with increasing competition to secure financial returns equal to the cost of living, and whether they so desire or not it is inevitable that they should seek the smaller cities and rural communities. Let us hope that when that time arrives conditions of rural practice will be so altered that qualified physicians will be able to find such facilities for the practice of modern medicine as will enable them to do credit to themselves and justice to their patients. To that end all branches of medical service should devote their very best thought and stand ready to offer constructive suggestions.

## UNIVERSAL MILITARY TRAINING— MEDICAL ASPECT

By DAVID BOVAIRD, M.D.,  
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THE question proposed for our consideration this evening is that of Universal Military Training from the viewpoint of the medical man

We are not to debate the approach of the millenium, the disappearance of war from the field of human affairs, the need of national defense, or the method of providing it, but assuming that some measure of universal military training may be enacted, what may be said of the probable results upon the youth of the nation. More specifically the proposal most in favor with our military leaders appears to be that every man between the ages of 18 and 23 capable of military service shall undergo a period of six months military training in one year and follow this by two weeks spent with the colors every year for five years, a total of 8½ months' service in all. The plan is that the men called to service shall be gathered in camps or cantonments such as were established in 1917-18 and then undergo their training under conditions similar to those with which we are all familiar

To view the subject of universal military training from the medical standpoint is to my mind simply the formulation of the medical arguments in support of the proposal, which to do before this post is so truly "carrying coals to Newcastle" that it seems superfluous. I have no doubt that every man in the room could readily present most of the cogent reasons for the plan. Personally I should be much more interested in hearing a presentation of the opposition, being possessed of no little curiosity to know the mind and motives of the men who in the light of our history as a nation, and the experience still so vividly before our minds, can still set their faces against a proposal so clearly dictated by that experience and so imperatively demanded for our national safety and honor

However, if it will serve to indicate our deep interest in the subject and enable us to exert our influence in behalf of the proposal, let us set in array the results of universal military training as they appear to the medical mind. Let me at the outset say that I have read with appreciation a series of articles on this subject appearing in the *Infantry Journal* in recent months to which my attention was called by the Surgeon General's office. Chief of these is one by General Ireland himself, in which the medical man will find the subject treated in a most convincing manner

The recruits themselves will experience certain definite benefits having lasting influence on their health and vigor

The six months of the intensive training will involve an open-air life under most favorable conditions as to quarters, food, regularity of exercise, and hours of rest. No one who had occasion to observe the physical results of such experience upon the men in our camps in 1917-1918 can have any doubt as to the beneficial results upon the great majority. They will come out of the camps with improved health and increased vigor, which rightly conserved will make them decidedly more valuable citizens of our country. Exceptions there will doubtless be, but such exceptions will be so comparatively few as to literally serve only to prove the rule

Even more important than the direct physical gain incidental to the camp life will be the educational results with relation to personal hygiene and camp sanitation. To properly assay the value of the recruit's experience along these lines we must remember how thoroughly ignorant of these subjects the average man of the selected ages is, and how far above the sanitary conditions of the average home throughout the country are those of a carefully selected and well-constructed camp. The ample provision of baths and the enforced cleanliness of person should establish habits which should be of permanent value in the maintenance of health throughout the remaining years of life. Scoffers may question the permanence of these influences and point out the easy reversion to old negligence upon return to the less favorable conditions of home life, but in the great majority of cases the educational value of the camp experience will not be lost but will be manifest in the after life of the individual. Dull though he may be, the average man cannot spend six months of his life in a camp devoted to military training without grasping the significance of perfect health in relation to his personal happiness and efficiency, and having an eye to his own good he will inevitably make some effort to live up to the teachings of his experience. Nor will he be entirely unresponsive to the value of the sanitary conditions of the camp and the regulations with which he must comply. Few will come from the camps without some valuable information as to the health value of pure water and wholesome food, and the vital necessity of proper care of refuse and sewage

Of very great value must be the demonstration to the recruits of the measure taken to protect them against certain infections, and the results of this care. The wholesale inoculations against smallpox and typhoid and paratyphoid fevers should secure immunity against the infections and teach lessons of lasting value

\*Read before the Caduceus Post American Legion April, 1921

to our citizens. Of supreme importance should be the instruction regarding the prevalence and dangers of venereal infections and the efficiency of the measures designed for their control.

That results almost beyond belief are possible when our established methods are carried out with energy and thoroughness is no longer a matter of opinion only. I have personal knowledge of at least one medical unit of 200 men who spent five months in France without a single case of venereal infection in the command. We may not hope to revolutionize human nature, but experience justifies the hope that much can be done to mitigate the results of human folly and ignorance. As a school of instruction in the perils of venereal infection and the value of preventive methods these camps in which year after year the young manhood of the country is to be assembled can be of mercurial value. Nowhere else will it be possible to give this instruction the compelling force that it has in the military camp. No prophet or seer is required to foresee results of the greatest value to the health of the nation from an earnest and faithful campaign of education along these lines.

From the medical viewpoint the greatest results of the operations of the draft law in the recent war was the revelation of the physical deficiencies of the men of the nation between the ages of 21 and 30. 'The statistical study of Defects Found in Drafted Men' shows that of the 3,764,101 Class I men of the first and second registrations 549,099 were rejected by the local boards as unfit for any military service, and that of 2,666,867 selective service men of the first and second registrations who were sent to mobilization camps, an additional 200,686 were rejected. The combined rate of rejections from the camp and local boards was 21.21 per cent. For 45.82 per cent of the men examined a military defect was noted either by the local or camp boards. Over one fifth of the men of military age totally unfit for such duty. That fact alone would indicate that it is high time Government should give serious consideration to the physical condition of its citizens and take whatever steps are necessary to increase their bodily vigor and efficiency.

We may argue that there are many duties which can be performed by men unfit for military service and that many of those rejected for the service were nevertheless energetic and useful citizens, and yet we know beyond a doubt that 21 per cent of military incompetents includes far too many who by reason of physical weakness most often induced by disease are unequal to any service, are indeed burdens to the nation. The health and vigor of its people are the greatest assets of any nation. No people can be satisfied with conditions

which render over one-fifth of its men unfit to bear arms.

But the necessity of effective action to change conditions was made more clearly manifest by the later physical examinations of men sent to the camps for military duty. Of every thousand, 468 (or nearly one-half) showed defects worthy of note. Thirty-nine per cent of these defects involved the bones, joints, or appendages of the hands or feet. One eighth of all the men examined had weak feet. Fifty per thousand had deformed or injured appendages of the hands or feet. 40 per thousand had hernia, 23 per thousand had hypertrophic tonsils, 26 per thousand had some form of valvular disease of the heart, 30 per thousand suffered from tuberculosis, 32 per thousand had some form of venereal disease. There is material for a great deal of earnest study and serious thought in this volume on 'Defects of Drafted Men' compiled by Colonel A. A. Love and Major C. B. Draynport. It is very easy to lose one's bearings in the maze of figures indicating the frequency of this or that disability in various states, or groups of the population, but we cannot miss the plain fact that in these statistical tables is embodied a vast deal of vital information regarding the physical condition of our people. Compulsory military training will involve the same sort of physical survey of the men coming to military age. Every year we shall have it driven home to us that large numbers of our young men are either totally unfit for service or seriously handicapped by physical disease. In making a study in his office of the draft statistics of the World War and applying them to the national census just completed by the Government, the Surgeon General finds that every year nearly 400,000 youths attain maturity with physical defects which if permitted to go uncorrected partially or wholly tend to impair their efficiency and usefulness later on in our national life.

Knowing the situation it is clearly the duty of the nation to take the necessary steps to improve these conditions. We are even now struggling with the task of giving proper care to the sick and wounded of the great war. Thus far it seems that we have made a mighty poor list of it, but none of us doubts, I am sure, that measures will soon be taken to remove this reproach and to do our best for the men who deserve it. This must mean the provision of permanent government hospitals of capacities never thought of before the war.

It is quite evident that the operation of a compulsory training law will in like manner, reveal many unfit and handicapped men in each year's muster. We know that many of these disabilities and handicaps are remediable. The opportunity will be presented by proper care



of the men called to the service to relieve them of some of their disabilities—such as defective teeth, hypertrophied tonsils, and hernia. Much can be done by the orthopedic surgeon in dealing with the flattened arches and other mechanical faults of the extremities. An enormous public service can be rendered by the proper medical care of the men in the service. Best of all will it be if the education of the nation along these lines will lead to such care of our school children as to forestall and prevent the development of many of these disabling conditions or diseases.

This particular part of our theme cannot be left without pointing out that the operations of a compulsory service law will inevitably throw a heavy burden upon the medical staff of the army. These new responsibilities under the circumstances cannot be met by calling upon the Medical Reserve officers, since they will not end with one or two years, but must rather increase with each succeeding year. The regular medical corps will have to be considerably enlarged and provided with groups representing the several specialties, exactly as did the staffs of the base hospitals. Only in this way will it be able to adequately meet the burdens and responsibilities entailed by the new service.

The assembling of great numbers of men in camps again will rouse no little anxiety as to the possibility that the camps will witness a repetition of the visitation of such devastating pestilences as measles and influenza. So far as one can see at this moment we are no better prepared to deal with these particular infections than we were in 1917-18. It may be long before influenza returns, but measles is always with us, and the means of controlling its ravages are not known. It may well present a serious problem to those responsible for the health of the men in the camps.

To sum up, universal military training, entirely apart from governmental or military consideration, and apart also from its influence upon character and mentality, which will be fully dealt with by Dr. Zabriskie, presents to our view certain definite advantages:

- 1 The physical training will produce lasting benefits in the physique and health of the recruits.

- 2 A knowledge of personal hygiene and camp sanitation of great value to the citizen.

- 3 Protection against certain infectious diseases, and in particular a knowledge of the dangers of venereal infections and the methods of protection against them which should result in pronounced reduction of these perils.

- 4 A survey of the physical deficiencies of our young men which should lead to energetic measures to correct, and still more to prevent them.

## In Memoriam

GODFREY ROGER PISEK, M.D., Sc.D.\*

By S. ADOLPHUS KNOFF, M.D.

New York

From out the midst of life so full of work,  
Of love and service to mankind,  
He has been called away!  
Away from us, his comrades,  
And from those who loved him best  
As father, husband, and as friend,  
From those who were his pupils and his aides,  
Inspired by his devotion and his skill,  
From those who read his works  
And followed his advice  
When called the ills of children to assuage  
These men, unknown to him,  
Are all his pupils and disciples still,  
They too will miss him and the spoken word  
Which was to them as to us here  
A constant help their courage to inspire  
But sadder still it is that he must go  
From countless little children here  
That he himself had loved so much,  
To whom he gave his best  
As healer and as friend  
How great a loss his going is to all!  
To those who saw him at the bedside,  
Gentle, kind, and almost saintlike thus,  
Dispensing succor and relief, recalling  
Vigor and the glow of health  
When death seemed near  
He was so young, and yet  
Into one single score of years  
He crowded all the work of a long life,  
So that it seems he had been with us here  
For many a year ere yet his face we knew  
Because of his achievements great  
His character and high ideals,  
Few had more friends  
Than he could count his own,  
Few had attained the same renown  
When still so young in years  
The trust his colleagues gave was but his due.  
In mutual helpfulness he was their guide  
And now he is no more, we say farewell to Godfrey  
Whose name means Peace with God  
But is this parting final after all?  
Is he no more because his mortal form  
We can no longer see or touch?  
Did Johann Huss the martyr, whom his fathers  
And himself as teacher in religion did accept  
Who gave his life for truth and love  
And faith in God and man,  
Did he not show that life beyond the grave is real?  
That those who have passed on do never pass away?  
That in God's realm both love and labor  
Do continue for all those who served him well  
In this our earthly sphere?  
May we not ask of him, our Godfrey, now  
To send his love and inspiration from on high  
That we may live and work as he had done,  
That when the call for us shall come  
To go where he now dwells,  
An echo may be heard of what  
So surely is now said of him,  
"Well done, thou good and faithful one,  
Be blessed and enter thy reward!"

\* Presented before the Section on Pediatrics of the Medical Society of the State of New York, at the Annual Meeting, Brooklyn, May 5, 1921.

## New York State Journal of Medicine

Published monthly by the Medical Society of the State of New York under the auspices of the Committee on Publication

Business and Editorial Office  
17 West 43rd Street New York N Y

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## LEGISLATION

THE Legislature of the State will meet again in a few short weeks, and as usual numerous laws will be proposed the enactment of which will influence the physician and the practice of his profession. What are the facilities offered by the medical profession to the law-makers to aid them in framing such necessary legislation with due regard for the interests of the profession concerned, and what are the safeguards to prevent the passage of laws contrary to the best interests of public health and preventive medicine, or of those which may lower the standards and the dignity of the medical profession? Your House of Delegates has made it possible to establish a Legislative Bureau in which the Committee on Legislation can function more efficiently. The Bureau is in its infancy, its value, its scope and its effectiveness will depend on the co-operation of the members of the State Society individually. It must have not only the moral support but also the material aid of every member for complete success. Its possibilities are without limit in establishing a constructive policy in public affairs as they affect public health and medical practice. It must study the current problems, suggest the necessary laws and aid in their passage for the betterment of public health preventive medicine and the maintenance of professional standards. It must establish a reputation for helpfulness to the lawmakers in posting them on the needs of the people in matters of public health and the faithfulness and efficiency of this service will measure the resulting respect and confidence of the public, the profession and the Legislature. Your Committee on Legislation cannot do this unaided, your individual help is necessary, and the extent and sincerity of it will determine the degree of success of the Bureau you have established.

## REVISION OF CONSTITUTION AND BY-LAWS

DURING the last session of the House of Delegates the following resolution was adopted: "That the President be empowered to refer to the Council in conjunction with the legal Counsel the revision of the Constitution and By-Laws of the Medical Society of the State of New York."

At the first meeting of the Council a Committee was appointed to undertake this task, and a tentative draft of this work will be presented to the Council for consideration and correction at the regular December meeting. The draft is adopted by the Council for presentation to the next House of Delegates will be published in the JOURNAL for January and February. The members of the Society are urgently requested to consider the proposed new draft and to communicate objections or additions to the Executive Committee of

Dr J E Wattenberg, chairman of the committee on Laboratory and Sanitation of the Staff of the City Hospital, presented a statement in regard to the establishment at the Hospital Laboratory of a sub-station of the Laboratory of the State Department of Health where state supplies may be secured at any time, day or night. Moved, seconded and carried that this Society favors the establishment of such a sub-station and hereby petitions the Health Officer, Dr H H Crum, to establish the same.

#### SCIENTIFIC SESSION

Dr Edwin MacD Stanton, Schenectady, presented a paper entitled, "Some Causes of Renal Pain Not Commonly Recognized." Dr Stanton took up the subject of so-called renal colic produced by pathologic conditions of the urethra and ureters and benefited or cured by local treatment of these parts.

Discussed by Drs J E Wattenberg and Martin B Tinker.

Dr Martin B Tinker presented the following cases on compound fracture of the femur in which there was difficulty in securing coaptation, necessitating an operation for removal of a tissue from between them with ultimate good results. On a gunshot wound of tibia and fibula producing a compound comminuted fracture with loss of bone and from which some 300 shot were removed. Case is somewhat crippled, but prefers his present leg to an artificial one. On multiple fracture of arm and forearm caused by being wound around a whirling shaft.

A rising vote of thanks was given to Drs Stanton and Tinker.

#### LIVINGSTON COUNTY MEDICAL SOCIETY

ANNUAL MEETING, OCTOBER 4, AT GENESEE

The meeting was called to order at the Powers Hotel, the president, Dr Burt, presiding.

The minutes of the previous meeting and the secretary-treasurer's reports were read and approved as read.

The question of county dues for the ensuing year was next taken up and on motion made by Dr Shanahan and approved by the Society, the County dues for the next year were raised to two dollars.

The following officers were elected for the ensuing year: President, J C Dorr, Vice-President, W E Diefenbach, Secretary-Treasurer, Le Grande Damon, Censors, F R Driesbach, W E Lauderdale, W T Shanahan, J M Burt and J H Burke.

"Treatment of Varicose Ulcer," J M Burt, M D. Discussion by Dr F J Bowen, Dr Harry Trick and Dr J M Burt.

"Infections of the Hand and Treatment," Harry Trick, M D, Buffalo. General discussion by members of the Society.

The meeting adjourned for dinner at six o'clock.

"Backache in Women," Dr James E King, Buffalo, types and treatment.

A vote of thanks was extended by the Society to the speakers and the Secretary-Treasurer was instructed to notify them of the succeeding meetings.

#### NASSAU COUNTY MEDICAL SOCIETY

ANNUAL MEETING, NOVEMBER 29, AT MINEOLA

The first annual meeting of the Society was called to order in Nassau County Court House, with twenty-one members present.

The amendment to the By-laws, proposed at the September meeting, creating a membership class to be known as "honorary," was unanimously adopted. Dr C H Pershing, formerly a resident of Nassau County, whose resignation was accepted at the last meeting, was elected an honorary member of the Society.

The following officers were elected for the year 1922: President, Arthur C Martin, M D, Rockville Center, Vice-President, Benjamin W Seaman, M D, Hempstead, Secretary-Treasurer, James S Cooley, M D, Mineola, Historian, Walter Lindsay, M D, Huntington; Censors, L S Van Kleeck, M D, A H Parsons, M D, E R Schilling, M D, James W McChesney, M D, and E C Jessup, M D, Delegate to Medical Society, State of New York, two years, Roy D. Grimmer, M D, Delegate to Associated Physicians of Long Island, Frank T DeLano, M D, Rockville Center.

Three new members were elected.

Scientific Session. Dr Wilbur Ward of New York read a very valuable and carefully prepared paper upon "The Present Status of Certain Obstetrical Problems," which was discussed by several members.

The president's address was inspiring and timely, urging the importance of the work of the Society.

#### SUFFOLK COUNTY MEDICAL SOCIETY

ANNUAL MEETING, OCTOBER 27, AT RIVERHEAD

The following officers were elected for 1922: President, J W Stokes, M D, Southold, Vice-President, James L Halsey, M D, Islip, Secretary, Frank Overton, M D, Patchogue, Treasurer, J W Bennett, M D, Patchogue, Censors, W N Barnhardt, M D, Central Islip, M B Lewis, M D, Sag Harbor, S R. Corwith, M D, Bellport, Delegates to State Society, Frank Overton, M D, Patchogue, W H Ross, M D, Brentwood, Alternates, Guy H Turrell, M D, Smithtown Branch.

Five new members were elected.

#### SCIENTIFIC SESSION

1 President's Address, "When, Where and Whither," Dr E S Moore, Bay Shore.

2 "Syphilis and the Family Doctor," Dr E H Marsh, State Superintendent of Health.

3 "Recognition of Tuberculosis by Suffolk County Physicians," Dr E P Kolb, Superintendent Suffolk County Sanatorium.

#### MEETING OF THE JEFFERSON COUNTY MEDICAL SOCIETY

REGULAR MEETING, NOVEMBER 10, 1921

The following new officers elected for 1922: President, F G Metzger, M D, Carthage, Vice-President, M MacG. Gardner, M D, Watertown, Secretary, Walter S Atkinson, M D, Watertown, Treasurer, A H Allen, M D, Watertown.

Three new members elected and one member reinstated.

President's Address, G B Van Doren, M D.

"Pathology of Nephritis," W W Hall, M D.

Discussion by I M Meader, M D.

"The Diagnosis and Prognosis of Nephritis," E C Reifnestein, M D, Syracuse, N Y.

Discussion by F B Smith, M D.

## Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review as dictated by their merits or in the interest of our readers.

**THE MICROTOMIST'S VADE MECUM. A HANDBOOK OF THE METHODS OF MICROSCOPIC ANATOMY.** By ARTHUR BOLLES LEE, Hon F R M S. Eighth edition edited by J BRONTE GATENBY. Octavo of 594 pages. Philadelphia, P. Blakiston's Son & Co. 1921. Cloth \$6.50.

**DISEASES OF THE SKIN.** RICHARD L. SUTTON, M.D., Professor of Diseases of the Skin, University of Kansas School of Medicine. Dermatologist to the Christian Church Hospital. With nine hundred and sixty nine illustrations and eleven colored plates. Fourth edition revised and enlarged. C. V. Mosby Company, St. Louis, 1921. \$9.50.

**ATLAS FOR ELECTRO DIAGNOSIS AND THERAPEUTICS.** By F. MIRAMOND DE LAROCQUETTE, M.D. Medecin Principal Chef des Services D'Electro Rdiologie de L'Afrique du Nord a Alger. Authorized translation by MARY GREGSON CLEETHAM, Dame Infirmiere Militaire. With foreword by ROBERT KNOX, M.D., Hon Radiographer King's College Hosp. Paul B. Hoeber New York. 1921. Price \$4.50.

**HISTORY OF MEDICINE, WITH MEDICAL CHRONOLOGY SUGGESTIONS FOR STUDY AND BIBLIOGRAPHIC DATA.** By FIELDING H. GARRISON, M.D., Lt. Colonel Medical Corps U. S. Army. Third Edition revised and enlarged. Octavo. 942 pages. 257 portraits. Philadelphia and London. 1921. W. B. Saunders Co. Cloth \$9.00 net.

**DISEASES OF THE SKIN.** By HENRY W. STELWAG, M.D. Ninth Edition revised. Assisted by HENRY K. GASKILL, M.D. attending dermatologist Philadelphia General Hospital, 401 pages. illustrations and half tone plates. Philadelphia and London. W. B. Saunders Co., 1921. Cloth \$10.00 net.

**THE SPLEEN AND SOME OF ITS DISEASES.** By Sir BERTRAM MOYNIHAN, England. 129 pages. 13 page diagrams. Philadelphia and London. W. B. Saunders Co. 1921. Cloth \$5.00 net.

**OXFORD MEDICAL PUBLICATIONS—HEART DISEASE AND PREGNANCY.** By Sir JAMES MACKENZIE, M.D. FRCP, LL.D. Edinburgh and Aberdeen. FRCS, FRCP. Hon. Director Institute Clinical Research, St. Andrews Consulting Physician, Victoria Burnley and London Hosp. Henry Frowde and Hodder & Stoughton. London. 1921.

**THE OXFORD MEDICAL PUBLICATIONS—THE ANATOMY OF THE HUMAN ORBIT AND ACCESSORY ORGANS OF VISION.** By S. ERNEST WHITNALL, M.A., M.D., B.Ch. (Oxon). MRCS, LRCP (Lond). Prof. of Anatomy, McGill University, Montreal. Illustrated largely by photographs of actual dissections. Henry Frowde and Hodder & Stoughton. London.

**OXFORD MEDICAL PUBLICATIONS—THE CARE OF EYE CASES. A Manual for the Nurse Practitioner and Student.** By ROBERT HENRY ELLIOT, M.D., B.S. (Lond), ScD (Edin). FRCS (Eng). Lecturer in Ophthalmology, London School of Tropical Medicine. Ophthalmic Surgeon, Hosp. Tropical Diseases, Prince of Wales Hosp. 15 illustrations. Henry Frowde and Hodder & Stoughton. London.

**OXFORD MEDICAL PUBLICATIONS—THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN.** By ZACHARY COPE, B.A., M.D., M.S. (Lond). FRCS (Eng). Surgeon, Bournemouth Hosp. Henry Frowde and Hodder & Stoughton. London.

**OBSTETRICS AND GYNECOLOGY.** Edited by JOHN S. FAIRBAIN, M.A., B.M., B.Ch. (Oxon). FRCP (Lond). FRCS (Eng). Obstetric Physician, St. Thomas's Hosp. Lecturer on Midwifery and Diseases of Women. St. Thomas's Hosp. Med. School. Henry Frowde and Hodder & Stoughton. London. 1921.

**THE OXFORD MEDICINE, by Various Authors.** Edited by HENRY A. CHRISTIAN, M.D., Hersey Professor Theory and Practice of Physic, Harvard University. Physician in Chief, Peter Bent Brigham Hosp., and Sir JAMES MACKENZIE, M.D., FRCP, LL.D., F.R.S. Consulting Physician, London Hosp. and Director of the Clinical Inst., St. Andrews Scotland. Illustrated. Vol. V. Infectious Diseases (Cont.) and Diseases Due to Animal Parasites. Oxford University Press American Branch, New York.

**DISEASES OF THE CENTRAL NERVOUS SYSTEM.** Under the Editorial Supervision of Sir JAMES PURVES STEWART, K.C.M.G., C.B., M.D., FRCP, Sr. Physician Westminster Hosp. Consulting Physician, West End Hosp. Nervous Diseases. London. Vol. VI, illustrated. Oxford University Press American Branch, New York.

**1920 COLLECTED PAPERS OF THE MAYO CLINIC, Rochester, Minn.** Octavo of 1392 pages, 446 illustrations. Philadelphia and London. W. B. Saunders Co. Cloth \$12.00 net.

**ANALFES DE LA DIRECCION DE SANIDAD NACIONAL PUBLICACION TRIMESTRAL.** Director Dr. L. G. CHACIN TRIAGO. Caracas, Venezuela. Ano II. Abril a Diciembre de 1920—Nums. 6, 7 y 8. Caracas. Tipo grafia America. F. J. Camejo & Co. 1921.

**SURGICAL ANATOMY.** By WILLIAM FRANCIS CAMPBELL, M.D. Surgeon in Chief, Trinity Hosp. Brooklyn, Sometime Prof. Anatomy and Prof. Surgery, Long Island College Hosp. Third Edition revised. 681 pages. 325 original illustrations. Philadelphia and London. W. B. Saunders Co. 1921. Cloth \$6.00 net.

**TWELVE ESSAYS ON SEX AND PSYCHOANALYSIS.** By WILHELM STEEL, M.D., Vienna. Translated and edited by S. A. TANNENBAUM, M.D. New York. Critic and Guide Company. 1922. New York.

**PRINCIPLES OF MEDICAL TREATMENT.** By GEORGE CHEEVER SHATTUCK, M.D., A.M., Assistant Prof. Tropical Medicine, Harvard Medical School. Fifth Revised Edition. With contributions on Tuberculosis, JOHN B. HAWES, 2nd M.D., Acute Infectious Diseases, Most Common in Childhood, EDWIN H. PLACE, M.D., Influenza, GERALD BLAKE, M.D., Diabetes Mellitus, BENJAMIN H. RAGLE, M.D., Serum Treatment of Pneumonia, HENRY M. THOMAS, Jr., M.D., W. M. Leonard Inc. Boston, Mass. 1921.

**THE LIFE OF JACOB HENLE.** By VICTOR ROBINSON, M.D. Editor of *Medical Life*. The first biography in the English language of one of the makers of modern medicine. Medical Life Company, 112 Mount Morris Park West, New York, N. Y. 1921. Price \$3.00.

**THE INTESTINAL PROTOZOA OF MAN.** By CLIFFORD DOBELL, M.A., F.R.S. and F. W. O'CONNOR, M.R.C.S., L.R.C.P., D.T.M. & H. Eight colored plates. Published on the Medical Research Council, John Bale Sons & Danielsson, Ltd. London, W. I. 1921. Price 15 shillings.

**THE GLANDS REGULATING PERSONALITY.** By LOUIS BERMAN, M.D. Associate Biological Chemistry, Columbia University, Physician, Special Health Clinic, Lenox Hill Hosp. The Macmillan Company, New York.

**VICF AND HEALTH PROBLEMS—SOLUTIONS.** By John Churence Funk, M.A., LL.B. Director Bureau of Protective Social Measures, Pennsylvania State Health Department. Scientific Assistant, U. S. Public Health Service, formerly U. S. Navy Law Enforcement Representative, Supervising Inspector, U. S. Office of Naval Intelligence. J. B. Lippincott Company, Philadelphia and London.

**THE MEDICAL CLINICS OF NORTH AMERICA.** Volume 5. Mayo Clinic Number. Number 2. September 1921. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

## Book Reviews

**AUGUSTE LUMIERE**—*Rôle des Colloïdes Chez les Êtres Vivants, Essai de Biocellulologie, Nouvelles Hypothèses dans le Domaine de la Biologie, et de la Médecine* MASSON ET C<sup>IE</sup>, Editeurs, Libraires de L'Académie de Médecine 120, Boulevard Saint-Germain, Paris VI, 1921

This is an essay on "the evolution and the flocculation of the colloidal molecule considered as bases of normal and pathological physiology"

It is announced as a setting forth of some new hypotheses in the domain of biology and medicine, and to the casual reader such is truly the case

The gist of the treatise may be given in two statements of the writer. The first is that "the colloidal state maintains life flocculation determines disease and death"

The second constitutes the first paragraph of the author's conclusions and reads as follows "The tissues of living beings are composed, in great part, of colloids, and the reactions taking place therein which produce growth, nutrition, disease and death, should conform to the laws which govern the evolution of these colloids"

While the volume is not large, the prodigious amount of labor involved in its production may be at least guessed at by the discovery that the bibliography contains sixteen hundred and twenty-seven references

To those who know French, and who have a thirst for studies of new concepts of physiology and biochemistry, this essay of Lumiere will be fascinating reading  
W H DONNELLY

**A TREATISE ON THE TRANSFORMATION OF THE INTESTINAL FLORA WITH SPECIAL REFERENCE TO THE IMPLANTATION OF BACILLUS ACIDOPHILUS** By LEO F. RETTGER and HARRY A. CHEPLIN, Yale University Octavo of 135 pages New Haven, Yale University Press London, Humphrey Milford, 1921

This is a most interesting little volume and exceedingly well written. The authors have been engaged for a number of years in a study of the intestinal bacterial flora, chiefly to ascertain two points. First, the relation of diet to the character of intestinal flora and second, the possibility of implanting bacteria of known physiological properties in the intestine. Studies were made first upon white rats, later upon human beings. The experiments are given in detail and would seem to prove that the intestinal flora changes in response to the character of the diet and that it is possible to implant *B. Acidophilus* in the intestine by oral administration. The authors describe the preparation of *B. Acidophilus* milk and enumerate its points of superiority over milk soured by *B. Bulgaricus*

While the idea is far from new, the authors have advanced and strongly substantiated a fascinating hypothesis. However, before becoming unduly enthusiastic over the possibility of curing intestinal troubles by bacterial implantation, one should remember that interfering with the chemical reactions of the body is as complex a problem as solving a European boundary line. We consider this a valuable contribution to knowledge and look forward to new papers from the Sheffield Laboratory of Bacteriology  
E B SMITH

**FEEBLENESS OF GROWTH AND CONGENITAL DWARFISM WITH SPECIAL REFERENCE TO DYSOSTOSIS CLEIDOCRANIALIS** By Dr MURK JANSSEN OBE Octavo of 82 pages illustrated London, Henry Frowde, 1921 (Oxford Medical Publications)

The recent work of Murk Jansen is a new departure on this interesting subject. It illuminates a subject that is scarcely ever touched upon in pathological treatises. Here we have an analytic, philosophic treatise in arriving at conclusions

The author starts his treatise by giving us three types

of growth feebleness—(1) The type, with weakness of muscles and enhanced body height; (2) The types with average height, muscle weakness and knock-knees; (3) The type the height of which is below normal, with thickened growth cartilages and curved diaphyses, the rachitic type. We next see how the feebleness of growth is proportional to the intensity of the injurious agent and to the rapidity of growth

The second part of the book, devoted to Congenital Dwarfism, brings out and emphasizes the following principles: (1) Compression of flexible parts of the embryo diminishes or arrests blood-supply; (2) Diminished or arrested blood-supply dwarfs or kills the affected parts; (3) Growth-stunting is effected first and most in those parts which grow fastest. Illustrations of these principles are Anencephaly, Achondroplasia, Mongoloid Idiocy, Dysostosis Cleidocranial, Congenital Club-foot, and Congenital Luxation of the Hip—the former being the most severe forms

All these forms are due to variations in size of the amnion, resulting in variations in pressure

The book is well written and a valuable addition to philosophic treatises on a very difficult subject

B. E. WOLFOFF

**PRACTICAL TREATISE ON DISEASES OF THE SKIN** By OLIVER S. ORMSBY, MD Second Edition, thoroughly revised Octavo of 1,166 pages with 445 illustrations Philadelphia and New York, Lea and Febiger, 1921 \$10.00

Although there are fifteen new skin diseases discussed in the second edition, the size of the book has been kept the same, this was accomplished by rewriting and revising four hundred pages. Everything new or useful that has appeared in dermatological literature during the interval between the first and second edition has been incorporated in the text. Many new illustrations have been added to an already admirably illustrated work. The press work and binding are of the usual Lea and Febiger style

This work like all modern text books, has this appended to the title, "FOR THE USE OF STUDENTS AND PRACTITIONERS," which is supposed to mean that the student or practitioner who is untrained in the particular subject the work deals with, will be able to get the needed help from reading it

Unfortunately many text books on the specialties are apt to be very confusing to the tyro, this is not so with the work under review. Dr Ormsby is a teacher and in writing his book he has kept in mind the fact that the student and general practitioner seeks help when he consults a text book, consequently it is written in simple style, not so technical but that any one having a simple grounding in the fundamentals of dermatology could understand and profit by reading it. It gives the reviewer pleasure to recommend Ormsby's second edition to any one who is, or expects to be, interested in dermatology  
J M W

**RADIANT ENERGY AND THE OPHTHALMIC LENS** By FREDERICK BOOTH Octavo of 226 pages, with 230 illustrations Philadelphia, P. Blakiston's Sons & Co. 1921 Cloth, \$2.25

The author states in his preface that the object of his effort is to present from a didactic standpoint a study of the principles of optics. He has succeeded. The book is certainly didactic enough to please the most exacting. In fact, for the first eighty-five pages, which are concerned with radiant energy, fact after fact comes crashing out of the ether, to land stunningly and unerringly on the reader's rapidly dizzying brain, without a trace of explanation of any statement to act as a shock absorber to the sorely racked mental mechanism of the persistent peruser

If one knew something about physiological optics this book would confirm him in his

likely add to it. But if he knew nothing about it he would flounder from the start.

The succeeding chapters on vision refraction and all their sub divisions, are happily clear and brevity is not so marked as to preclude understanding. In fact a novice would derive a good working knowledge of the subject from reading it.

There is a lot of meat in this book, but don't gobble it or waste your digestion. E. CLIFFORD PLACK.

**FUNDAMENTALS OF BACTERIOLOGY** By CHARLES B. MOKLEY, B.A., M.D. Second Edition thoroughly revised 12mo of 320 pages illustrated with 171 engravings and 6 plates Philadelphia and New York Lea and Febiger 1921 \$3.25

This small volume contains exactly what the title proclaims, namely fundamentals. The matter is presented in textbook form and is of a character to appeal more to the teacher of bacteriology than to the physician. After an historical introduction the author enlarges upon the morphology, physiology and study of bacteria stressing general principles rather than detail. The usual details of preparation of stains and media and the characteristics of the various pathogenic bacteria are omitted. This is purely an elementary introduction for students to general bacteriology. E. B. SMITH.

**ROENTGEN INTERPRETATION** By GEORGE W. HOLMES, M.D. and HOWARD E. RUGGLES, M.D. Second Edition thoroughly revised Octavo of 228 pages with 184 illustrations Philadelphia and New York Lea and Febiger 1921 \$3.25

The authors offer the rudiments of roentgen diagnosis to beginners in this work in concise fashion endeavoring to consider the osseous, circulatory, respiratory, alimentary and genito urinary systems in this small volume.

It was hoped that this the second edition would contain more detailed descriptions of the pathological findings as recorded on the roentgenogram. Unfortunately many of the illustrations are unsatisfactory to one unfamiliar with the roentgen manifestations of the lesion presented.

The chapters dealing with fractures and dislocations and with bone pathology should be of especial assistance to him who is taking his early strides through the field of Roentgen Interpretation. R. A. R.

**NUTRITION AND CLINICAL DIETETICS** By HERBERT S. CARTER, M.A., M.D., PAUL E. HOWE, M.A., Ph.D., HOWARD H. MYSON, A.B., M.D. Second Edition thoroughly revised Octavo of 703 pages Philadelphia and New York Lea and Febiger 1921 \$7.50

The second edition of this book has been revised and partly rewritten.

It is divided into four parts. Part I deals with the physiology of digestion, metabolism, energy, food requirement and cost of foods. Part II deals with the description of the various foods with their properties and uses in the body. Part III discusses feeding, in infancy and childhood and Part IV, over half of the volume is taken up with a discussion of feeding in disease.

Parts I, II and III are well written and contain an immense fund of information on the subjects covered.

Part IV is of especial interest because it is unusual in books on foods and nutrition.

The authors have their discussion on the facts brought out in the earlier chapters and the diseases are grouped. The scientific reasons for their recommendations are given in each case before the diet.

This is a subject that has been chaotic and is still a matter of personal opinion. Hence patients find that

no two physicians agree on the subject of diet recommended.

The authors have attempted, at least, to lay down the scientific principles which should guide us in the selection of a diet for those suffering with certain groups of diseases. While perhaps opinions will still differ as to the choice of foods, and patients will differ as to their tolerance of foods, every practicing physician should read this part of the book. It is the best attempt to standardize the feeding of the sick that the reviewer has seen.

The reviewer must commend the authors for the very complete index of twenty pages of double column which adds greatly to its value for reference. E. H. B.

**MANUAL OF OPERATIVE SURGERY** By JOHN FAIRBAIN, B.M.B., A.M., C.M., F.A.C.S. Eighth edition revised and enlarged Octavo of 1311 pages with 1628 illustrations Philadelphia P. Blackiston's Son & Co., 1921 Cloth, \$12.00

The World War has resulted in certain improvements in this edition in localization of foreign bodies but more especially in certain aspects of technique in thoracic, abdominal and plastic surgery. These chapters in Linnies Surgery have been rewritten. Drs. G. G. Davis and W. S. Sutton who previously contributed so ably to the subjects of 'Congenital Dislocation of the Hip and War Surgery,' respectively have since died. The pupil of the former Dr. I. D. Dickson, has revised the chapter of his former teacher. Portions of Dr. Sutton's work dealing with roentgenological methods have been revised by Dr. E. H. Skinner.

Dr. Binnie's teaching has always been sane, a surgical philosopher in the true sense couching his language in a clear terse and explicit way which can be easily grasped by the student. The standards which he set for his work have not been excelled and his manual the authority for years through the accumulated years of experience and a mind kept nourished and fertilized by the increasing additions to surgical knowledge still remains the standard text book on operative surgery.

R. H. FOWLER

**MEDICAL ELECTRICITY, ROENTGEN RAYS AND RADIUM WITH A PRACTICAL CHAPTER ON PHOTOTHERAPY** By SINCLAIR TOWNSEY, M.D. Consulting Surgeon St. Bartholomew's Clinic New York City Third edition Thoroughly revised and enlarged Octavo 1337 pages 861 practical illustrations 16 in colors Philadelphia and London W. B. Saunders Company 1921 Cloth \$10.00 net

This latest voluminous edition indicates an attempt on the part of the author to keep his text parallel to current events. Townsey himself realizes the thorough impossibility of detail in a work of its kind as unfortunately the book touches upon so many interrelated specialties. The edition however abounds with information given in excellent style and readily capable of absorption. It is of value for historic reference as well as a purveyor of general medical electrical information.

The section devoted to X-ray, some 346 pages is given over in greater part to technique and methods of former days a fact to be deplored as the author shows by an occasional reference a more profound knowledge of modern technique, giving the casual observer an erroneous impression as to the present day methods.

One cannot refrain from commenting upon the author's originality of thought and numerous inventions all of which indicate an analytic mind and a thoroughness of detail which is noted throughout the book.

MITCHELL C. WATSON

THE ELEMENTS OF PRACTICAL PSYCHO-ANALYSIS By PAUL BOUSFIELD, M.R.C.S. (Eng.), L.R.C.P. (Lond.) Octavo of 276 pages London Kegan Paul Trench, Trubner & Co., New York, E. P. Dutton & Co., 1920 Price, \$5.00

Bousfield's book can be heartily recommended as a good elementary exposition of the principles of Psychoanalysis. The greatest difficulty the new student in this field has, is to view the subject matter objectively and not subjectively. He must not inject his own feelings into his studies.

Bousfield's presentation is so clear and simple that he can be readily followed even by one with no previous knowledge of the theory of this new method. The only criticism we have to make against this book, is the unnecessary introduction of a certain metaphysical subject which has no place in an elementary work on this subject. Its introduction does no real good. It would be well if some immoderate critics of Freud would fortify themselves by reading this treatise. They would learn much from it that might change their antagonistic attitude. And inasmuch as Psychoanalysis has come to stay it behooves every medical man to have at least one book on the subject in his library. This one is acceptable as a guide.

J. F. W. MEAGHER

THERAPEUTIQUE CLINIQUE, Tome I and II By Dr ALFRED MARTINLT, avec la collaboration de MM. Desfosses, G. Laurens, Leon Meunier, Lomon, Lutier, Vartingav, Mougeot, et Saint-Cene. Masson et Cie. Editeurs, Libraires de L'Academie de Medicine, 120, Boulevard Saint-Germain, Paris, 1921

This two volume treatise on clinical therapeutics is one more testimonial to the indefatigability and painstaking thoroughness of the European clinician and medical writer. Nothing seems too insignificant to be stated or explained in the text, and even the exact composition of the waters of various resorts is set forth with an exhaustive discussion of the indications and contra-indications therefor. The reading matter is divided into four main sections namely—Therapeutic Agents, Therapeutic Technique, Therapeutics of Symptoms, and, lastly, Therapy of Diseases.

For a physician with a reading knowledge of French this is a work of great value and the abundance of illustrations and drawings will help to bridge over any gaps which might occur in the reading or understanding of the printed page. Its one drawback, common to all European publications, is its paper cover which entails either unusual care in handling or the necessity of having a cloth binding applied.

W. H. DONNELLY

INFECTIONS OF THE HAND. A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. By ALLEN B. KANAVEL, M.D. Fourth Edition, thoroughly revised. Octavo of 500 pages with 185 illustrations \$5.50

This scientific classic offers a short cut to the diagnosis and treatment of hand infections, which is adapted not only to the needs of the surgeon but even more particularly to the requirements of the general practitioner who is very frequently called upon to treat these conditions in their incipency when accurate diagnosis is not only more difficult but also more important for the conservation of function. A careful survey of the surgical anatomy, experimental study of the factors controlling and guiding the spread of infection from all possible foci

correlated with the vast clinical experience of a careful observer, from the basis for the accurate diagnostic methods and rational treatment postulated by the author.

The chapter on restoration of function, added in this edition, deserves special mention because of its wide scope.

HARRY KOSTER

THE SCIENCE OF OURSELVES (A Sequel to the "Descent of Man") By Sir BAMPFYLDE FULLER, K.C.S.I., C.I.E. Octavo of 326 pages London, Henry Frowde, 1921 Oxford Medical Publications

If an Epilogue is the condensation of an author's conclusions, this writer is not particularly proud of his human cousins. His inquiry has resulted in a marked disillusioning—even lamentably severe. He is the "other" one who has seen us, and with an impartial eye withal, even to the dividing asunder of the bone and marrow. With the consciousness of such a poor opinion of us challenging our motives and capabilities the reading of the text becomes a dual search for a faithful explanation not only with the author of the causes and mechanism of our being, but also unconsciously for our own sake for the whence and whither of our existence. Neural Psychology may be a piercing X-ray, but "Gnothi seauton" possesses the warmth of Radium.

The hypothesis of the book is that man is a neural complex. The physical, mental and moral phenomena which he manifests are the result of nervous action—the stimulus initiates, the reaction completes the mechanism. Eating, moving, thinking, hating, hoping, loving, the beating of the heart, the elucidation of a complex mental problem, the ebullition of anger, prayer, these are all nervous action and reaction. We are the creatures of our likes and dislikes. There is no spirit vitamin.

As an attempt to explain man in terms of physical science the author has made a notable contribution to anatomy and psychology. He does not attempt a dissection of the supranormal self. The greater part of the first portion of the book is devoted to the anatomy of the brain and its mechanism. There follow an interesting study of the evolution of ideas, with special attention to the four basal concepts—time, space, motion and force. Perception and thought are defined as combinations or unifications of impressions. The author makes two groupings of thought as it is concerned with non-self and the self, namely, on the one hand expectative and explorative, and on the other appreciative and imaginative. These three chapters are rich reading. It is when the author in the second part relentlessly uses the same focal glasses upon the emotions that Ego slips out from under cover glass and refuses to be squeezed into a nonentity. It is the revolt of Actuality against pure reason, of Synthesis against dissociation, of Life against matter. "Sumus" hesitatingly yields to "absum."

It is rare sport none the less, to chase oneself into a corner according to the author's rules of the game and permit dissection of even the inmost thought and emotion. If our nerves squeak as we tickle them to raise a laugh, or turn red as we explode in anger, and if an excitation of the love node presupposes a chemical change of the neural plasma due to the inhalation of the perfume of a red rose, what matters it, we know we can be a hero and shout with Hugo "the world is mine!", or pray with Browning's slave in "Instans Tyrannis." All of which is writ to provoke interest in a really readable—because well written, and profitable book, because it concerns ourselves.

TYRANNIS (A. F. E.)

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